

Laptops: A Buyer's Guide • WordPerfect 5.0 • Support Groups for Women in Business
Fax Boards: Using Your Computer as a Fax Machine • 37 Hardware & Software Reviews

May 1989 \$2.95
Canadian \$3.25

HomeOffice

COMPUTING

TM

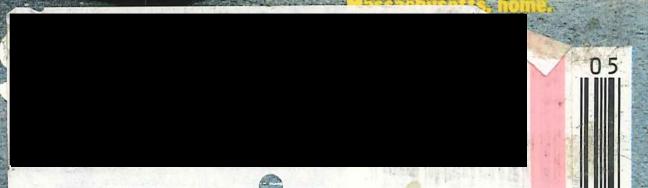


Philip Shier, founder of Computer Express, an on-line computer store, built his \$2.1 million business and this 1927 Ford hot rod from his Sudbury, Massachusetts, home.

Million-Dollar Home Business

Secrets of Success

05



0 "76956"14008"4

Bring work home from the office...



The Tandy® 1000 HX

Here's the affordable way to keep up with your heavy business workload. The Tandy 1000 HX is a low-cost PC compatible with built-in MS-DOS®, a 3½" disk drive and its own personal productivity package.

Using the included Personal DeskMate™ 2 software, you can prepare memos and reports, estimate cost proposals, keep track of daily activities and even communicate with the computer back at the office. You can also bring home and run the same MS-DOS software you use at work.*

And with MS-DOS built in, running the 1000 HX is a breeze. Just pop in your program disk, and you're ready to start computing right away!

Boost your productivity with the Tandy 1000 HX—your best value in home PC computing.

Tandy Computers: Because there is no better value.™

*Some software programs require additional memory. MS-DOS/Reg. TM Microsoft Corp.

or make your office at home.



The Tandy 1000 TL

If you're setting up shop at home, look to the powerful Tandy 1000 TL for the 286 power you need at a price even the smallest business can afford.

The 1000 TL features an 80286 microprocessor for far greater processing power than ordinary PCs—you'll fly through applications.

With MS-DOS and the exclusive DeskMate® Graphical User Interface built into memory, you can go right to work. With 640K of memory, you can run all of today's most popular business programs, from word processing to accounting systems. And the included DeskMate software gives you ten useful applications you can use the very first day.

The Tandy 1000 TL is one of Home Office Computing's Editors' Picks for 1988. Come see why at Radio Shack.

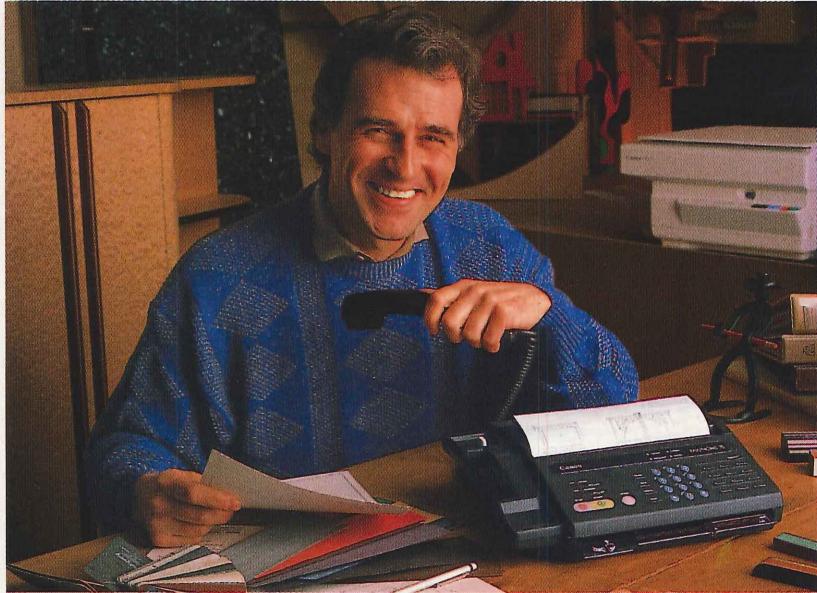


Radio Shack®
The Technology Store™

A DIVISION OF TANDY CORPORATION

CIRCLE READER SERVICE 64

Achieve Personal Excellence.



With the one and only Canon FaxPhone.TM It offers outstanding functional excellence in personal fax.

And no wonder. Canon, maker of America's #1 Personal Copiers, has designed facsimile especially for the needs of small business. And to make sure your needs are answered perfectly, Canon FaxPhones are available in a choice of models. From the most basic. To the one that's a whole business communications center.

We've also just introduced a brand new model, the FaxPhone 15, which adds advanced business phone features to basic fax.

Every one of these FaxPhones is simple, reliable—even enjoyable—to use. And can help enhance your productivity to the maximum.

Personal excellence in fax. Well, what else would you expect from Canon?

Canon
FAXPHONETM

Canon U.S.A., Inc. Consumer Products Division One Canon Plaza, Lake Success, NY 11042. Regional phone numbers: New York (516) 488-6700 Chicago (312) 250-6200 Atlanta (404) 448-1430 Dallas (214) 830-9600 Los Angeles (714) 979-6000 Enjoy easy extended payments with the Canon Credit Card. Ask for details at participating Canon dealers and retailers. Available only in U.S. FaxPhone is a trademark of Canon Inc. ©1989 Canon U.S.A., Inc.

CIRCLE READER SERVICE 33

FaxPhone 8



FaxPhone 15



FaxPhone 20



FaxPhone 25



FEATURES

COVER STORY

Million-Dollar Home Businesses: Secrets of Success

Page 41

You don't need a rich uncle, a corner office, or Wall Street savvy to build a million-dollar business. Here's a look at five home-based businesses that made it big with hard work, innovation, and perseverance.

BUSINESS SUPPORT

Where Women Can Get Business Know-How

Page 47

As the number of women business owners has grown, so has a network of support groups for female entrepreneurs. Here's where to go for financial help, information, and business advice.

DESKTOP PUBLISHING

How to Get Your Readers' Attention

Page 50

Add professional polish to your publications with attention-grabbing display type. We'll show you how to bring a typesetter's tools to your desktop with specialized software packages.

PROJECT MANAGEMENT

Finish What You Start

Page 52

Do you market products or services to clients? Do you juggle several projects at once? If so, you might benefit from project-management software. Our question-and-answer guide tells you which features to look for. Also included: a chart comparing five project-management programs.

BUYER'S GUIDE

Laptops

Page 56

Portables can really pack a punch—boasting 80386 microprocessors, VGA displays, and other features that were previously the exclusive domain of desktops. Reviews of 7 of the newest laptops, plus shopping charts with specifications for these and 13 more.

PRODUCTS

Hardware Reviews

Page 62

Miniguide to Fax Boards: Reviews plus a side-by-side comparison of four cards that bring fax capabilities to your computer—Brother IntelliFAX, GammaLink GammaFax CP, Intel Connection CoProcessor, and Quadram JT Fax 9600. *Removable Hard-Disk Drives:* Plus Development's Plus Passport and the Tandon Ad-PAC. *Dot-Matrix Printer:* Star Micronics NX-2400 24-pin Multi-Font. *Speakerphone:* Panasonic KX-T3880.

Office Essentials

Page 72

The latest and greatest in office gadgets, accessories, supplies, and furniture. This month: A miniature computer vacuum cleaner, erasable disk labels, colorful disks, a Mac II workstation, a demagnetized computer tool set, and an antistatic pad.

Software Reviews

Page 73

Long reviews of *WordPerfect 5.0*, *FullWrite Professional*, *T/Master*, and *Canvas*. Capsule reviews of *HelpMe*, *Norton Commander*, *OPTune*, *The Program Director*, and *Tree86*.

FAMILY COMPUTING

Finding the Lost Generation

Page 82

Geography software helps fight geographic illiteracy, and it's fun! The best-sellers incorporate entertainment, mystery, and even flight simulation to teach geography—painlessly.

Software for Learning and Leisure

Page 86

Education/Family Productivity: Long Reviews of *Learning with LogoWriter Home Edition* and *College Explorer*. Capsule reviews of *Neurobics* and *Writing Skills Improvement Program*.

Entertainment: Long reviews of *Guardians of Infinity: To Save Kennedy* and *JetFighter: The Adventure*. Capsule reviews of *Battletech: The Crescent Hawk's Inception*, *Neuromancer*, *P51 Mustang*, *Times of Lore*, *Zoom*; and *4th and Inches Team Construction Disk*.

Entertainment News and Hints

Page 96

The inside scoop on undersea-diving software, car-racing games, flight simulators, and fantasy role-playing games, including an adventure in urban planning. Plus: hints for *Manhunter: New York*; *Crystal Quest*; and *F-15 Strike Eagle*.



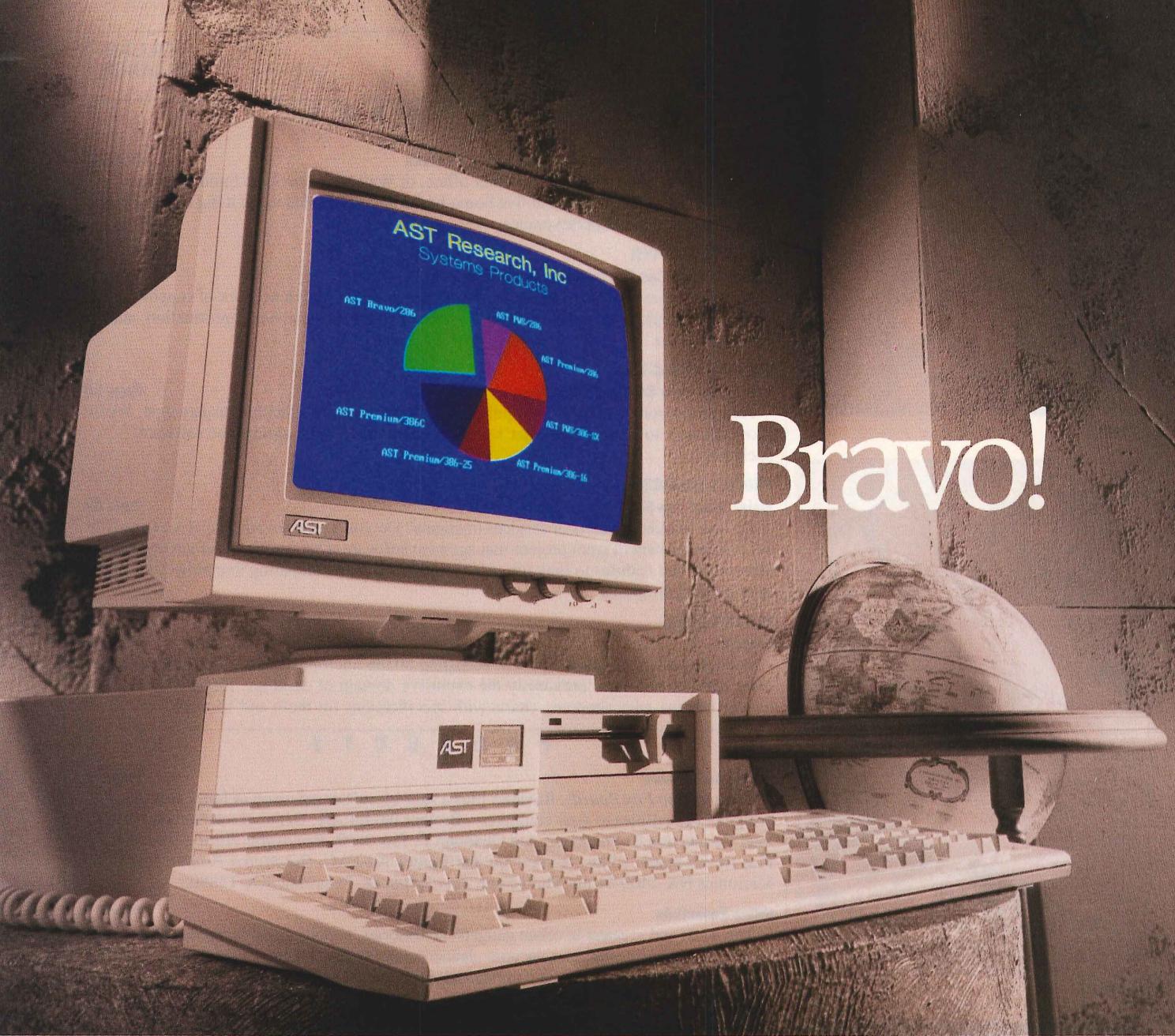
Page 41



Page 47



Page 56



Bravo!

AST Bravo/286. Finally, a fast AT®-compatible that's compatible with your budget. If you didn't think you could afford a powerful 80286 computer from a highly respected manufacturer like AST, it's time to think again.

Introducing AST Bravo/286, the high-performance AT-compatible that redefines value in personal computers. Running at zero wait-states, the AST Bravo/286 makes short work of a large variety of applications, performs wonderfully as a LAN station, and offers the kind of flexibility never seen before in an inexpensive 286 computer.

If you've got a home office or you're running a small business, or your big business got big by being cost effective, the AST Bravo/286 is the perfect answer.

That's because word processing, data base and spreadsheet applications have progressed beyond the power of 8088 and 8086 computers. The 80286

is now the standard. And, AST Bravo/286 gives you that standard, at a very attractive price, and much more.

Speed and expandability are only the beginning. AST's reputation for quality and support is the best in the industry. It's a combination that'll meet your needs, and exceed your demands.

If you're looking for value in 80286 computing, there's only one choice — AST Bravo/286. Give us a call. **(714) 863-0181 and ask for operator BB25**, or use our Bulletin Board Service number **(714) 852-1872**, or send us the coupon.

**AST Bravo/286
Starting At
\$1095***

Please send me information on AST Bravo/286.

Please have an AST Representative call me.

I am an end user a reseller.

Name _____

Title _____

Company _____

Address _____

City/State/Zip _____

Phone _____

AST Research, Inc. 2121 Alton Avenue, Irvine, CA, 92714-4992, Attn: M.C.

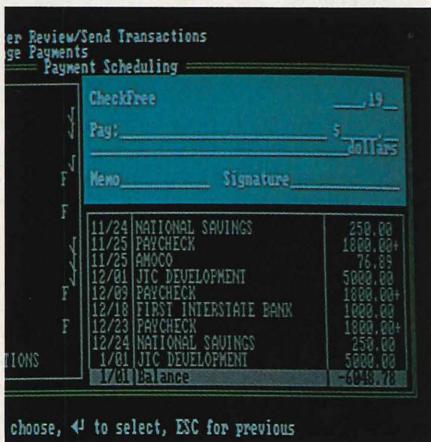
AST markets products worldwide — In Europe and the Middle East, call 44 1 568 4350; In Japan, call 81 3 818 0710; In the Far East, call our Hong Kong Office at 852 5 806 4333; In Canada, call 416 826-7514. AST, AST logo registered trademarks AST Research, Inc. All other brand or product names are trademarks or registered trademarks of their respective companies. Copyright © 1989 AST Research, Inc. All rights reserved. *Manufacturers Suggested List Price.

AST
RESEARCH INC.

Times Have Changed.



Page 12



Page 32

ADVISORY BOARD

Lynie Arden, editor, *Worksteader News*; Paul & Sarah Edwards, authors and sysops of *Compu-Serve's Working from Home Forum*; Lis Fleming, director, *Association of Electronic Cottagers*; Charles H. Gajeway, assistant vice president, Merrill Lynch; Gil Gordon, editor, *The Telecommuting Review*; Tom Miller, director, *ESU Telework Group* (a division of Link Resources); Joanne H. Pratt, Joanne H. Pratt Associates, independent consultant.

HOME-OFFICE COMPUTING (ISSN 0899-7373) is published monthly by Scholastic Inc., 730 Broadway, New York, NY 10003. Subscriptions: in U.S., 12 issues for \$19.97; Canadian and U.S. possessions add \$6.00 per year for postage; foreign residents add \$8.00 per year. Printed in U.S.A. Copyright © 1989 by Scholastic Inc. All rights reserved.

POSTMASTER: Send address changes and notice of undelivered copies to HOME-OFFICE COMPUTING, P.O. Box 53561, Boulder, CO 80322-3561. Known office of publication, Scholastic Inc., 351 Garver Rd., Box 2700, Monroe, OH 45050-2700. Second-class postage paid at Monroe, OH 45050-9998 and additional offices.

HOME-OFFICE COMPUTING is a trademark of Scholastic, Inc. and FAMILY & HOME-OFFICE COMPUTING and FAMILY COMPUTING are registered trademarks of Scholastic Inc., 730 Broadway, New York, NY 10003.

COLUMNS**ShopTalk**

Page 16
Getting Messages While on the Move. Contributing editor Joanne Pratt answers readers' questions on retrieving answering-machine messages from a cellular phone, business-plan writing, and bridging the communication gap between the Apple IIGS and the Mac Plus.

Clinic

Page 18
Answers to Your Computing Questions. HOME-OFFICE COMPUTING's technical staff digs up answers to readers' computing questions. This month: Using Tandy 1000 HX 3.5-inch disks on an IBM PS/2 Model 50 and problems booting an IBM clone.

Machine Specifics

Page 20
Portable Overhead Projector for IBM PC; New Mac IIcx; Printing with Your Apple II. Computer and software news, opinions, quotes, and rumors, reported by HOME-OFFICE COMPUTING's authorities on the IBM/MS-DOS, Macintosh, and Apple II universes.

Telecomputing

Page 36
Put Your Computer to Work While You're Away. Now you can access your computer and run applications from anywhere with a modem and remote-host software.

Working Smarter

Page 38
Entrepreneurs: How to Streamline Your Business. Columnists Paul and Sarah Edwards focus on today's new entrepreneurs—the technicians, artists, and professionals who pursue a love of work, not business.

Workstyles

Page 104
Baby Boomer at Work. Our telecommuting senior editor, Nick Sullivan, examines the workstyles of the late eighties and identifies the traits that separate the *self-developers* from the *innovators* among us. The innovators create new organizational models, the self-developers make them work. Which side of the fence do you fall on?

DEPARTMENTS**Editor's Note****Page 6****Letters****Page 10****Up Front****Page 12**

News, advice, tips, and a shot of humor on computing, using home-office technology, and running a home business. This month: A mentor program for women entrepreneurs, an inexpensive catalog with a wealth of business information, an update on rising cellular-phone sales, a lesson in fax etiquette, and Apple's new Mac SE/30.

Word Processing**Page 24**

Writing Your Way. Your word processor is often your coworker and constant companion, so why put up with awkward commands? Customizing your keyboard makes the partnership more efficient.

Databases**Page 28**

Forms for Every Function. Forms are an inevitable fact of life, and most businesses use a variety of them. Here's a rundown of the latest software packages designed to help you create personalized forms to suit your needs.

Finance**Page 32**

Checkless Checkwriting. Bogged down by monthly bills? Checkfree's on-line service makes your payments on time and updates your balance after each transaction.

Best-Selling Software**Page 80****Home-Office Shopper/Classifieds****Page 98****Advertiser Index****Page 103**

OUTSTANDING SOFTWARE

\$2.49

Per Disk
(\$2.99 per disk
when ordering
less than 10)

Satisfaction Guaranteed or Money Back!

BUSINESS

- 13 Express Calc - (2 disks) Powerful financial spreadsheet.
- 53 EZ-Forms - Create, fill in, print yr business forms. 512K.
- 79 Invoicer - Generate invoices, ease record keeping.
- 117 Finance Mgr II - (2 disks) Handle personal/bus finances.
- 135 PC-Acc - (2 disks) Manage books, track inventory, sales.
- 159 Mass Appeal - Mail mgr for envelopes, labels and more.
- 190 PDS*Quote - Compute job/cost estimates. 640K.
- 201 Checks - Log bank transactions, produce financial rpts.
- 226 File Express - (2 disks) Menu driven all purp database.
- 232 Dr Data - (2 disks) Friendly, easy-to-use mail mg. 640K.
- 234 T-Master - Control & update inventory. Know daily levels.
- 316 Tracker - Manage clients, sales prospects! 512K, hrd dsk.
- 319 EZ-Desk - (2 disks) Keep appointments, update agendas.
- 337 Charge - Analyze your credit charges, payments, interest.
- 383 Mutual Fund Mgr - Track yr portfolio, get weekly reports.

EDUCATION

- 186 DOS Tutor - Learn DOS painlessly w/this interactive tutor!
- 191 PC-Quizzer - Learn music, States, etc. Sign lang demo.
- 228 PC-Fastype - Teaches typing. Builds dazzling speed! ★
- 297 XY-Solve - Graphic math game makes learning fun!
- 366 GraderScan - Makes it simple to keep and avg grades.
- 376 GradeM - Teachers/students can track/summarize grades.
- 384 XY-See - (2 disks) Graphic math for HS/college students.

GRAPHICS

- 58 Chemview - Rotating 3-D molecular structures. EGA.
- 145 Fingerpaint - (2 disks) Paint! Also obj oriented dsgn. ★
- 210 Dancad3D - (2 disks) Advanced design. 640K/hrd dsk. ★
- 285 SurfmodI - (3 disks) Produce & shade 3-D images. ★
- 356 Geoclock - (2 disks) Time map w/sun, dark areas! EGA.
- 362 VGACad - (2 disks) Super res 256 color painting! VGA.

GAMES

- 15 Biblemen - Excercise knowledge of Bible figures/events.
- 23 Star Trek - Amazing high res! Also Othello, Artillery. EGA.
- 28 Wordplay - (1k Wheel of Fortune). Also Backgammon. ★
- 84 Solitaire - Grt card games, Spider, Klondike, Canfield! ★
- 121 Arcade - Qubert, Pangio, Centipede, Hopper & more. ★
- 151 Hack - You & yr trusty dog in a wild adventure (lk Rogue).
- 176 Striker - Helicopter attack. Also Risk, world domination. ★
- 215 Phrase Craze - Solve word puzzles or create your own!
- 289 3-D Packman - Also Kong, Spacewar, ABM (missiles). ★
- 309 Blackjack - (you set rules). Also ArmchairQB & Empire!
- 321 Adventure - Explore the caves! Also Castle, Star Trek.
- 365 Adventure Game Toolkit - (5 disks) Play, create yr own!
- 372 Pinball - Also Othello, Dragons, Sopwith, Battleship. ★

UTILITIES

- 138 Printer Utilities - Spooling, banners, fonts & more!
- 214 Zip-Phone - (2 disks) Xrefs phnt# to zipcode & vice-vers.
- 258 Easy Access - Setup a menu sys for your PC. Hard disk.
- 275 DOS Utilities - Large collection of invaluable general utils.

MISCELLANEOUS

- 31 Movie Database - (2 disks) Lists 4,000+ films. Grt trivia!
- 48 Wisdom of the Ages - (4 disks) 6000+ famous quotes.
- 72 Bible - (12 disks) Compl index King James bible! Hrd dsk.
- 74 Landlord - Trouble w/r landlord? Learn your legal rights!
- 146 PC-Lotto - Helps you beat your state's lotto odds!
- 153 PC-Write - (2 disks) Popular, powerful word processor.
- 291 PianoMan - (2 disks) Record your tunes or play music.
- 367 Music Library System - Track your tapes, LPs & CDs.
- 386 Computer Chef - (2 disks) 150+ grt recipes. Add yr own!
- ★ Disks so marked above require a color graphics adapter.

■ Membership Special! \$19.95 (reg. \$34.95)

For \$19.95 (\$25.95/year for 3.5") become a MicroCom Systems member and get: *The Shareware Book* (\$12.95 separately), a subscription to *"Shareware Review"* magazine, 6 free new-release shareware disks (one featured each issue), low member prices, and any disks in this ad for only \$1.99 each! (\$2.99 for 3.5")

■ 3.5" disks desired (add \$1.00/disk to applicable price)

MicroCom Systems Cost of disks
3673 Enochs Street Membership _____
Santa Clara, CA Shipping \$3.00
95051 CA res tax _____
Total encl. _____

Phone Toll Free for Same-Day Shipment!



(800) 727-5995



Mon-Fri 7am-9pm, Sat-Sun 8am-5pm

The World is Round, And Millions of Businesses are Run from Home

Can you remember why Christopher Columbus believed the world was round? I can't, but I do remember that his beliefs contradicted the accepted opinion of the day. Imagine! Something people couldn't see with the naked eye turned out to be a new truth.

That's how it's been, up to now, with the home office. A few of us have been saying that people in this country are changing the way they think about work, and that an increasing number of employees are fast becoming droves of self-employed entrepreneurs. I like to think of it as a new and positive underground economy.

Large office complexes still stand, and always will. But many men and women have switched from working *in* them, to going *to* them to call on clients. How do we know that such changes are taking place? First, of course, are the studies reported on in the pages of our magazine. But closer at hand are the countless letters our readers send us and the thousands of completed questionnaires from our February issue that have been pouring in.

We editors love to pull random envelopes out of the large cardboard cartons that hold your responses, to get a taste of who you are and what you're up to. So far, it looks as though you run the full gamut of occupations and incomes. Diverse responses are a good sign—they tell us that, as with any large group, there is no one "typical" home office or home-based entrepreneur. Some small businesses are meant to stay that way while others are destined to grow; some businesses already pull in seven figures, and their owners hope to increase that to eight or nine.

We will continue to try to cover the full range of businesses in the pages of HOME-OFFICE COMPUTING. For some of you just starting out, a profile on a successful small-



scale business may give you the confidence to forge ahead. Others will turn to the big success stories for inspiration. For home-based entrepreneurs, the word *success* can have many meanings, not always related to money.

This issue's cover story, "Million-Dollar Home Businesses," (see page 41), focuses on several businesspeople who have managed to achieve both personal and professional success. It's amazing to me that when we first discussed the idea of covering million-dollar businesses, we thought they'd be hard to find; but contributing editor Lynie Arden came across so many, we had to limit our coverage to just a few.

Just this week *The Wall Street Journal* reported on the growing number of couples in business at home. We've been saying that for a long time. Hey, has anyone seen Christopher Columbus?

Claudia Cohl
CLAUDIA COHL EDITOR-IN-CHIEF

SCHOLASTIC INC. CORPORATE:

Maurice R. Robinson, founder, 1895-1982

PRESIDENT, CHIEF EXECUTIVE OFFICER, AND CHAIRMAN OF THE BOARD: Richard Robinson
VICE-CHAIRMAN OF THE BOARD EMERITUS: Jack K. Lippert

SCHOLASTIC NATIONAL ADVISORY COUNCIL: Dr. Gordon Ambach, executive director, Council of Chief State School Officers, Washington, D.C. • Dr. Terrel H. Bell, distinguished professor of education, University of Utah, Salt Lake City, Utah • William A. G. Fisher, principal, Taylor Allderdice High School, Pittsburgh, Pennsylvania • Dr. Angela M. Jaggar, professor of education, School of Education, Health, Nursing, and Arts Professions, New York University, New York, New York • Sister Catherine McNamee, president, National Catholic Educational Association, Washington, D.C. • Dr. Sidney P. Marland, Jr., chairman, former superintendent of schools and U.S. Commissioner of Education • Dr. Frank Newman, president, Education Commission of the States, Denver, Colorado • Charlie Lou Rouse, librarian, Stillwater Middle School, Stillwater, Oklahoma • Dr. June Spooner, principal, Dean Road Elementary School, Auburn, Alabama • Dr. Donald M. Stewart, president, The College Board, New York, New York • Freda Thorlaksson, Chico, California

We turn PC owners into PC users. For only \$6.65 a month.



A subscription to our monthly software brings you two 5 1/4" disks*, chock-full of great programs for your IBM® PC or compatible, Apple® II, Commodore® 64/128, or Macintosh™.

Learn all the capabilities of your PC.

Our monthly software takes you beyond the two or three programs you bought for your PC. Without spending a fortune, we will introduce you to new software *you can use* each month. You will get telecommunications, DOS shells, accounting applications, graphics, educational programs, and specialized utilities that make your PC easier to work with. There are even some terrific games as a bonus.

FREE SOFTWARE with your order.

Try our software for three months for only \$19.95. As an extra, we will send you FREE—a special *Bonus Disk* with more great programs to use with your PC.

Money-back guarantee.

If you are not satisfied with your purchase for any reason, return your first issue for a full refund. The *Bonus Disk* is yours to keep. You can't lose, so order today!

**SOFTDISK
PUBLISHING**

Call toll free
1-800-831-2694

*Also available on a single 3 1/2" disk.

IBM is a trademark of International Business Machines.

Macintosh and Apple are trademarks of Apple Computer, Inc.

Commodore is a trademark of Commodore Electronics, Ltd.

Our programs are *original software, not public domain*, so you will build a quality software collection as you learn. Each month you will sharpen your computing skills and become a smartssoftware buyer. You just can't buy better computing experience.

Big Blue Disk

(A typical IBM back issue)

Small Business Accounting System—
A ledger for small businesses.

Mandelbrot Microscope—See the world of fractals in graphic detail.

Calorie Calculator—Plan menus and keep track of your calorie intake.

Plus 3 more great programs!



YES! Please rush me my free *Bonus Disk* and start my three-month subscription to the *Softdisk* product marked below for only \$19.95 postage paid. (Canada/Mexico \$24.95, Overseas \$27.95) Make checks payable to *Softdisk Publishing* in U.S. funds. (Louisiana residents add 4% sales tax).

BIG BLUE DISK for IBM® PC and compatibles (5 1/4" disks) (3 1/2" disk)

SOFTDISK for Apple® II+(64K), //e, //c, and IIcs (5 1/4" disks) (3 1/2" disk)

LOADSTAR for Commodore® 64 & 128 family (5 1/4" disks only)

DISKWORLD for Macintosh™ (512Ke, +, SE, II) (3 1/2" disk only)

Name _____

Address _____

City _____ State _____ Zip + 4 _____ -

Home Phone (_____) _____ - _____

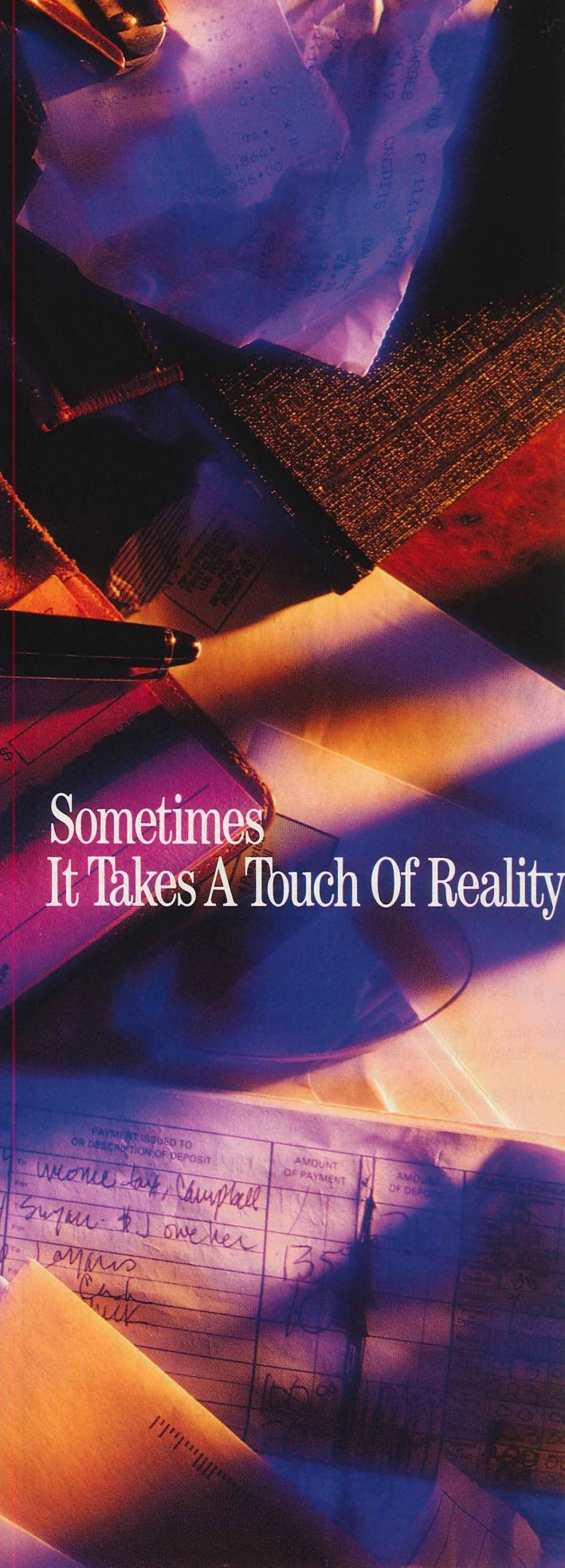
Discover Am Ex VISA/MC Payment Enclosed (U.S. funds only!)

Card # _____ Exp. _____

Signature _____

SOFTDISK
PUBLISHING P.O. Box 30008 • Shreveport, LA 71130-0008 • 318-221-8718 HO059





Sometimes
It Takes A Touch Of Reality

To Appreciate A Keystroke Of Genius.

CheckFree. The nationwide electronic banking system.

It pays all your bills. And more. In minutes. Conveniently. Efficiently. With your computer and modem.

No more writing checks. No more paperwork. No more stamps. No more late charges.

And, it works no matter where you bank.

Payments are processed through the Federal Reserve System. Securely. On time. Any time. Every time. With automatic record-keeping and complete control.

Service: \$9 per month. Servisware™: \$49.95. First month free. Money back guarantee. Order today. Call 1 800 882-5280, or see your local retailer. CheckFree. It pays.

CheckFree®

Availability: Carried by leading retailers including Egghead Discount Software®, Radio Shack® and Software City®. Guarantee: For phone or mail orders, if you are not completely satisfied with CheckFree servisware, return with proof of purchase within 30 days for a full refund. Hardware Requirements: IBM® PC/compatibles w/ 256K RAM, MS/DOS® 2.1, Hayes® compatible modem, and two floppy drives or a hard disk system. Modem Offer: We will provide CheckFree servisware along with the new Hayes Personal Modem 1200 for just \$149.95. Call 1 800 882-5280 for details. ©1989 CheckFree Corporation. All rights reserved. 5-12% Sales Tax Limitation: Nonusers extra charge for more than 20 monthly transactions. CheckFree is a registered trademark of CheckFree Corporation. All other trademarks are the property of their respective corporations.

SUPPORT FOR THE BASICS

John F. Wasik's review of Peachtree Software's *Back to Basics: Professional* software in your March issue (page 72) raised the issue of Peachtree's technical support.

Wasik reported that he had telephoned Peachtree for support and had to prepay for service he never got. Although we do request a credit-card number from technical-support users, our policy is to charge only for the amount of time spent on the user's query. We do not charge in advance. Because we, unfortunately, never made contact with Wasik, we never charged his credit card.

Over the past year, Peachtree has taken several steps to handle the increasing number of calls that the popularity of our products has brought to our support lines. We have installed a database system to log all incoming calls, and we've more than doubled the number of regional Peachtree Support Centers to 56 nationwide. We recognize that satisfied customers are our most important asset, but, despite our best intentions, mistakes can still occur. This appears to have been the unfortunate circumstance for Wasik.

JANICE VOLLMER

TECHNICAL SUPPORT MANAGER
PEACHTREE SOFTWARE
Norcross, Georgia

SURVIVAL STRATEGIES

I've become increasingly frustrated with your heavy coverage of well-established small businesses. I would like to see something on struggling small businesses, with concrete details on how to market products or services—the toughest part of any business. Also, I'd like to know how these businesspeople stay afloat in the meantime—by working for someone else part-time, surviving on savings, etc.

CATHY BARBER
Caledon, Ontario, Canada

GRÜSSE AUS DEUTSCHLAND

I teach English and office communications at a two-year community college, and I use your journal to keep up-to-date on prices and products.

Encouraged by the home-office phenomenon, I set up a mail-order book-importing company. Over the past year, increasing sales have allowed me to reduce my teaching load and take one full day off per week to pursue my business. So you see, the work-at-home trend is happening in this country as well.

I have *Future Shock* in both German and English on my bookshelf. Seeing Editor-in-Chief Claudia Cohl's picture with the book's author, Alvin Toffler (*Editor's Note, December 1988, page 8*), made me wonder if there is a videotape available of the keynote ad-

dress he presented at your Home-Office Forum.

JÖRG ERDMANN

Paderborn, West Germany

EDITOR'S NOTE: *There is no videotape of the 1988 Forum, but you can buy or rent a videotape of Alvin Toffler narrating The Third Wave by writing to Triwave Publications, 1015 Gayley Avenue, Suite 1204, Los Angeles, California 90024; (213) 208-2570. You can purchase the videotape for \$1,150, or rent it for three days for \$595.*

CORRECTION

Here is an updated list of radio stations that broadcast HOME-OFFICE COMPUTING columnists Sarah and Paul Edwards's *The Home-Office Show*, first mentioned in the January issue (page 10). Unless otherwise noted, all stations broadcast the show Sundays, 10:00 to 11:00 p.m., eastern standard time.

Houston, Texas; KSEV (700 AM); (713) 351-5828. Rebroadcasts at 7:00 a.m. Sundays.

Leadville, Colorado; KRMH (1230 AM); (719) 486-3600.

Hartford, Connecticut; WFNS (1230 AM); (203) 527-0888.

Hartford, Connecticut; WFNW (1380 AM); (203) 527-0888.

Denver, Colorado; KDZR (1390 AM); (303) 321-1956.

Portland, Oregon; KBNP (1410 AM); (503) 635-1401.

New Orleans, Louisiana; WSLA (1560 AM); (504) 641-1560.

Orlando, Florida; WBZS (1270 AM); (407) 297-1115.

Kansas City, Kansas; KBEA (1480 AM); (913) 432-1480.

The following stations plan to broadcast the show, but had not yet begun broadcasting at press time:

Buffalo, New York; WWKB (1520 AM); (716) 884-5101.

San Jose, California; KSJX (1500 AM); (408) 288-5400.

Sacramento, California; KXOA (1470 AM); (916) 923-6800.

For more information, call the Business Radio Network: (719) 528-7040, (800) 321-2349 (only in the continental United States).

HOME-OFFICE COMPUTING looks forward to letters from all readers. Please direct correspondence to Letters to the Editor, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. Include name, address, and telephone number. Letters become the property of HOME-OFFICE COMPUTING, and may be edited for length and clarity. ■

HomeOffice COMPUTING

PRINTED IN THE U.S.A.

730 Broadway, New York, NY 10003
(212) 505-3580

EDITOR-IN-CHIEF: Claudia Cohl

DESIGN DIRECTOR: Vincent Ceci

EDITORIAL

EXECUTIVE EDITOR: Bernadette Grey

SENIOR EDITORS: David Hallerman, Nick Sullivan

MANAGING EDITOR: Charlotte Pierce

ASSOCIATE EDITOR: Karen Kane

COPY EDITOR: Lauren Leon

RESEARCHER: Brianna Politzer

ASSISTANT EDITOR: James Phelan

EDITORIAL COORDINATOR: Michelle Wright

CONTRIBUTING EDITORS: Lynne Arden, Henry Beechhold, Paul & Sarah Edwards, Lis Fleming, Charles H. Gajeway, Roger Hart, Stephen Miller, Steve Morgenstern, Joanne H. Pratt, Barbara Stein

ART

DESIGN ASSOCIATE: Drew Hires

DESIGN ASSISTANTS:

Doreen Maddox, Susan Taylor, Kate Panzer

TECHNICAL

TECHNICAL DIRECTOR: Lance Paavola

MANAGING TECHNICAL EDITOR: Steven C.M. Chen

TECHNICAL EDITOR: Pasquale M. Cirullo

ASSOCIATE TECHNICAL EDITOR: Marie Alvich

ASSISTANT TECHNICAL EDITOR: Jeff Donahue

PUBLISHING

PUBLISHER: Richard Robinson

CONTROLLER: Ray Marchuk

PRODUCTION MANAGER: David J. Lange

CIRCULATION DIRECTOR: Karen Williams

CIRCULATION MANAGER: Michael Sheehy

CIRCULATION PROMOTION MANAGER: Patricia Neal

CIRCULATION ANALYST: Mary Kreider

CIRCULATION ASSISTANT: Andrea Fullwood

ASSISTANT BUSINESS MANAGER: Kevin Smith

ADVERTISING SALES OFFICES

ASSOCIATE PUBLISHER:

Paul W. Reiss (212) 505-3585

NEW YORK METRO DISTRICT MANAGER:

Jonathan Wolpert (212) 505-3628

SOUTHEASTERN DISTRICT MANAGER:

Susan Pienkos (212) 505-3588

NEW ENGLAND DISTRICT MANAGER:

Alicia Wisepart (212) 505-3587

MIDWESTERN DISTRICT MANAGER:

Sharon R. O'Brien

400 N. Michigan Ave., Suite 1104

Chicago, IL 60611

(312) 467-6888

WESTERN SALES MANAGER:

Ed Callahan (213) 827-9183

SOUTHERN CALIFORNIA DISTRICT MANAGER:

Pamela Taylor

4640 Admiralty Way, #417

Marina Del Rey, CA 90291

(213) 827-9183

NORTHERN CALIFORNIA DISTRICT MANAGER:

Pauline Sly (415) 392-4230

NORTHWESTERN DISTRICT MANAGER:

Larry Goldstein

870 Market Street, #555

San Francisco, CA 94102

(415) 392-4230

DETROIT REPRESENTATIVE:

Keith Olson, Keith Olson/Media

1100 N. Woodward Ave., #120

Birmingham, MI 48011

(313) 642-2885

MANAGER, ADVERTISING PROMOTION:

Theresa Mazza (212) 505-3586

ADVERTISING SERVICES COORDINATOR:

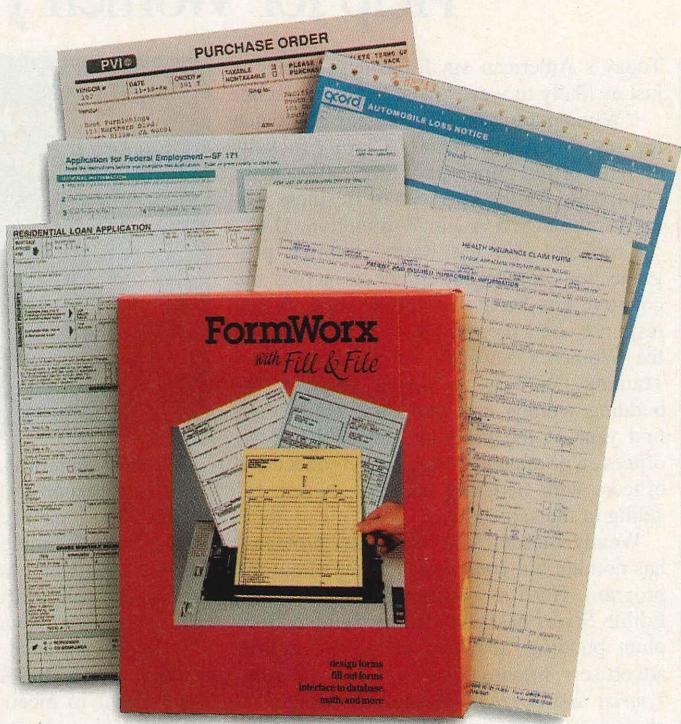
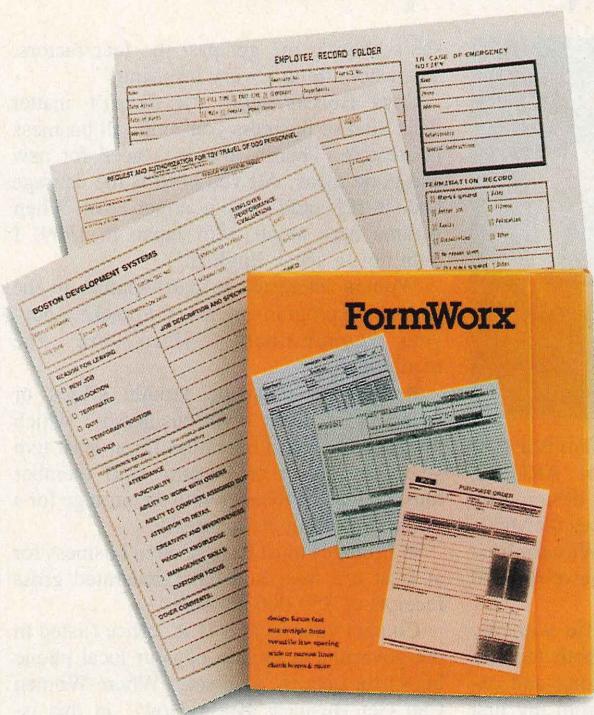
Margaret Helene (212) 505-3688

TELEMARKETING DIRECTOR:

Greg Rapport (212) 979-0728

Easy.

Powerful.



Why Compromise?

The choice is yours...

FormWorx®

Create Custom Forms. With FormWorx you can *easily make any form...* soon after opening the package! Intuitive pull-down menus and clear documentation help you customize one of the many generic forms provided. Or you can start from scratch. Either way, your business forms will truly look business-like using FormWorx, the only program in its price range that lets you easily mix multiple fonts and type in between single-spaced lines.

FormWorx with Fill & File™

FormWorx with Fill & File does everything FormWorx does plus it lets you...

Fill Out Pre-printed and Custom Forms.

Simply tab from blank to blank and *fill any form right on screen*. Entries go exactly where they belong! Print just the data onto standard, pre-printed forms, or form and data together onto blank paper. On laser and dot matrix printers. *The program even does math!*

	FormWorx® 2.5	FormTool® 2.01	FormFiller 1.1	Horizon 1.0	Perform 1.0	FormWorx with Fill & File 2.5
Creates custom forms.	●	●		●	●	●
Fills out pre-printed and custom forms.			●	●	●	●
Reads/writes dBASE files directly.						●
Does math.			●		●	●
Programmable. Automates forms processing.						●
List price.	\$95	\$95	\$149	\$195	\$259.95	\$149

Choose FormWorx or FormWorx with Fill & File.
But don't settle for anything in between.

Automate Forms Processing.

Only Fill & File is programmable allowing you to create custom menus and insure standardized forms completion. So, *your staff can fill out forms without ever having to know the software*. It saves them time and you money.

So Why Compromise?

FormWorx is the easiest form maker around. And FormWorx with Fill & File is the most comprehensive forms processor. **New!** Both packages now contain over 70 generic forms, exceptional manuals, pop-up calendar and calculator. **Don't settle for less.**

See your dealer immediately or phone today for fast delivery!
800-992-0085 or 617-890-4499

FormWorx®
CORPORATION

Reservoir Place, 1601 Trapelo Road, Waltham, MA 02154

30-day money back guarantee on direct purchases. When ordering by mail, include \$6.75 for shipping in U.S. and Canada. Air mail to Europe/So. America—\$18. All other locations—\$28. In Mass. add 5% sales tax. Purchase orders accepted from government agencies, institutions, and rated corporations. FormWorx is a registered trademark and FormWorx with Fill & File is a trademark of FormWorx Corporation. All other trademarks acknowledged.

EDITED BY BRIANNA POLITZER

Help for Women Entrepreneurs

Today's American small-business owner is just as likely to wear lipstick as a mustache.

"Women are going into business at twice the rate of men," reports Carol Crockett, director of the Office of Women's Business Ownership for the U.S. Small Business Administration (S.B.A.) in Washington, D.C.

Crockett, who has hosted training programs for women entrepreneurs across the country, has been so overwhelmed by the response she's received that she has fostered the Women's Network for Entrepreneurial Training (WNET), a mentor program for budding women entrepreneurs. During the first year of the program, selected S.B.A. offices will match female chief executive officers with fledgling business owners residing in the same city.

Wendy Blasdel, one of the first protégés, has nothing but good things to say about the program. Her Los Angeles-based company, Edible Style, has provided everything from plum puddings to racks of lamb for print advertisers, movies (such as *The Accidental Tourist* and *Beetlejuice*), and TV series, including "L.A. Law," "Cheers," and "Dynasty."



Blasdel's mentor is Masako Tani Boissonault, co-owner/co-founder of ARCHIFORM, Inc., an architectural design firm that has created lobbies and offices for Mattel Toys, Diners Club, and Great Western Real Estate, as well as furniture, jewelry, and fabrics for manufacturers.

"I have a special camaraderie with my mentor," says Blasdel. "We both feel we were meant to meet. She's strong and extremely giving. I came away from my first meeting with dozens of marketing ideas. And

she's helping me get past the fear factors. The whole thing is very inspiring!"

Says Boissonault: "It doesn't matter what kind of business you're in, all business is creative. There's always a need for new and good ideas. All you need is the courage to do it. If I could make it, anyone can. When I came here alone from Japan in 1969, I didn't even speak English."

Women interested in participating in the mentoring program are asked to make a one-year commitment. Here are the requirements:

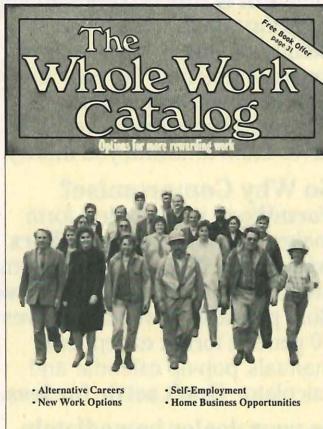
- Mentors must be female CEOs or founders of their own businesses, which must have been in operation for at least five years. A mentor or a senior staff member must be willing to meet with the protege for a minimum of one hour weekly.

- Protégés must have been in business for at least one year and have generated gross receipts of \$50,000 or more.

Contact your local S.B.A. office (listed in the government section of your local phone book) for details. Also see "Where Women Can Get Business Know-How" in this issue.

—BARBARA STEIN

\$1 Catalog Offers Work Alternatives



The Whole Work Catalog is a must for anyone who runs a business or is thinking about taking the leap into self-employment. It's chock full of books, cassettes, newsletter subscriptions, and other materials about alternative careers, working from home, self-employment, and "better ways of working." For a trial subscription, send \$1 (for first-class postage) to The New Careers Center, P.O. Box 297-K1, Boulder, CO 80306.

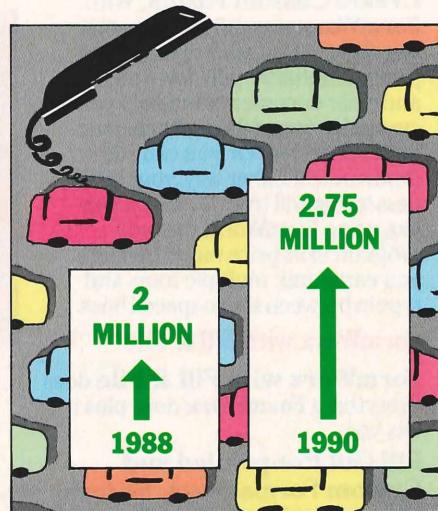
People are Talking (on Cellular Phones)

Did you buy a car phone last year? If you did, you've joined a growing crowd. According to Robert Keller, vice president of the New York metropolitan area branch of NYNEX Mobile Communications Company, the number of U.S. car phone and other cellular subscribers more than doubled in 1988—bringing the grand total to 2 million. Keller predicts that by this year's end there will be between 2.5 and 3 million cellular subscribers nationwide.

More than \$3 billion in phone calls from and to cellular phones is projected for 1989. And according to a recent NYNEX customer survey, 62 percent of cellular phone subscribers use their phones for personal calls at least half the time.

Women account for more than 20 percent of NYNEX's subscribers, a proportion that shows the technology is reaching all sectors of the market.

The biggest news for 1989, however, is that the industry is expected to adopt standards for the use of digital cellular technology, which will enhance sound quality. Keller says that NYNEX plans to introduce digital capabilities to the New York/New



Jersey metropolitan area by 1991.

So if you feel guilty about the money you spent on that sleek little dashboard phone—relax. Your patronage is helping a good thing get even better.

BRIANNA POLITZER is the researcher for HOME-OFFICE COMPUTING.

“Fax Unto Others As You Would Have Them Fax Unto You”

The age of junk fax—unsolicited advertisements and communications over the fax machine—is upon us, and it's not being taken lightly. Lawmakers in Connecticut, Washington, and Oregon have already proposed legislation that would make sending junk fax a civil offense, and more proposals are sure to follow.

Many of these lawmakers, such as Representative Richard D. Tulisano, a Democrat in the Connecticut State Assembly, are concerned that companies are using fax technology to sell unsolicited goods and services. Under Representative Tulisano's bill, junk fax senders would be subject to a civil penalty of \$200. This proposal does not violate the First Amendment, he insists. “You can say anything you want, just don't use my property to do it,” he says. Just as junk mail crowds your mailbox, junk fax busies your fax transmission line and causes wear and tear on your machine. It also wastes expensive thermal paper.

Tulisano concedes that junk fax is not yet a full-fledged epidemic. “But there's no reason to wait until it becomes a problem,” he

JUNK MAIL UPDATE: JUNK FAX



says. In the meantime, the representative has heard from lawmakers and businesspeople around the country who have been echoing his concerns. “Most people don't want junk fax. It interferes with their normal transmissions,” he says.

Bill McCue, president of Public Fax, Inc., a company that publishes a directory of fax services, believes that the magnitude of junk fax has been exaggerated, but stresses the importance of fax etiquette. “Junk fax isn't the problem. The problem is those who send and don't first establish the rules of fax engagement.” To demonstrate his point, McCue has established guidelines for fax transmission. To name a few:

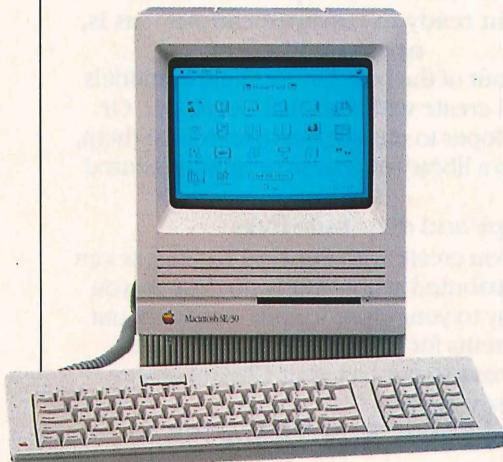
- Fax to a person and not just a number. Do not blindly send a fax to a company.
- Include routing information (a cover letter) with every transmission.
- Consider after-hours transmission when sending unsolicited material of any kind, or when sending documents over 10 pages long.
- Use the fax machine as a follow-up device, rather than as a prospecting device. If you're trying to make initial contact, you might try traditional direct-marketing or telemarketing avenues.

McCue stresses that the bottom line is courtesy. His golden rule? Simple: “Fax unto others as you would have them fax unto you.”

—SHARON HARVEY

CARTOON BY SIDNEY HARRIS

New Mac Hits the Streets



What looks like a Macintosh SE, runs as fast as a Mac IIx, reads MS-DOS files, and, with a 40MB hard-disk drive, costs less than \$5,000? Apple's latest—the new Mac SE/30. The new release, a hybrid that incorporates the Mac IIx's super-swift 68030 microprocessor, unlike the IIx, retains the look of the original Macintosh (it's still small enough to fit underneath an airplane seat!). It runs up to four times faster than the original Mac SE, for about half the price of the Mac IIx.

The real kicker is the inclusion of the Mac IIx's 1.4MB Superdrive, which can read, write, and format 3.5-inch MS-DOS disks. With the appropriate software, the new Mac can easily transfer files between Mac, MS-DOS, and the Apple II ProDOS formats.

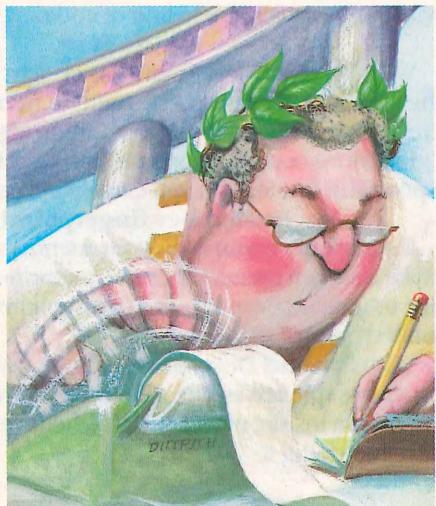
Other new and improved features include a 32-bit expansion slot (the old SE had a 16-bit expansion slot) and a math coprocessor, which dramatically improves speed and performance. The new slot, however, is not compatible with any existing Mac expansion cards. Sound is enhanced with a chip that allows four-voice stereo.

Three configurations of the new Mac are available. The first, with 1MB of RAM and the Superdrive, costs \$4,369. Add \$500 for a 40MB hard-disk drive. For a super-charged 4MB SE/30 with an 80MB hard-disk drive, the price is \$6,569. All configurations are expandable to 8MB on the motherboard. Mac SE owners can purchase upgrade kits, the prices of which were unavailable at press time.

Who knows what other Apple products 1989 will bring? In addition to the release of the new Mac IIcx, maybe we'll finally see the long-awaited laptop Mac.

— STEVEN C.M. CHEN

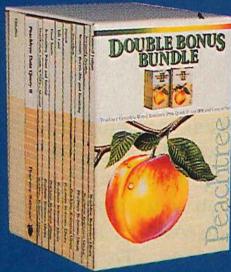
Who Had the First Known Home Office?



The distinction of originating the home office probably belongs to the ancient Romans. Politicians and statesmen built their homes to include a *tablinum*, where the master of the house kept his money and accounts.

ILLUSTRATION BY DENNIS DITTRICH

Either Way You Look at It, Peachtree Accounting Saves You Money.



PEACHTREE'S DOUBLE BONUS BUNDLE

Includes Peachtree Complete II
plus
Peachtree Data Query II

JUST
\$298

SAVE \$100

With PDQ II Enhanced You Can:

- Create on-screen inquiries to display data
- Present data in line or bar graphs
- Use any of over 20 pre-defined reports
- Modify pre-defined reports and save the formats
- Create your own reports and save the formats
- Transfer accounting information to spreadsheet and database programs like dBASE III® and Lotus 1-2-3®

And More!

A Recent Survey by the American Institute of CPAs Reports More Accountants Use and Recommend Peachtree Than Any Other Accounting System!

When it comes to accounting software, no one offers you more for your money than Peachtree. Now we're offering you two ways to buy our best-selling accounting software—and two great ways to save.

Peachtree Complete™ II is our premier business accounting system. Designed and sold as a \$5,000 accounting system, the latest version of Complete II represents a vastly expanded and greatly improved package that sells for an unbelievably low \$199. Find out what over 250,000 satisfied users already know—no other accounting system offers so much for so little.

And now, for businesses who want to make the most of their accounting information, Peachtree's Double Bonus Bundle gives you Peachtree Complete II Accounting plus its own custom reporting tool, Peachtree Data Query II™ Enhanced. The Double Bonus Bundle includes both systems—regularly priced at \$199 each—for just \$298. That's

a savings of \$100! Either way, Peachtree offers you the most accounting you can get for your software dollar.

Peachtree Complete II is a comprehensive accounting system developed to meet the needs of small- to medium-size businesses. It comes with eight high-power modules that may be used individually, or fully integrated for maximum accounting efficiency:

- | | | | |
|-----------------------|--------------------|-------------|----------------|
| • General Ledger | • Accounts Payable | • Inventory | • Fixed Assets |
| • Accounts Receivable | • Invoicing | • Job Cost | • Payroll |

And Peachtree Complete II is designed using the latest software innovations, like full-color scrolling reference tables, pop-up windows, and short-cut keyed menus. We've expanded to allow an unlimited number of companies, added service invoicing, range printing, and more.

Peachtree Complete II's error handling is quick and easy, with plain English messages and suggestions. Context-sensitive Smart HELP is on-line, all the time. And as always, Complete II comes with the most thorough documentation—a separate quick-start Installation Guide, Accounting Primer, seven-volume Reference Library, and extensive on-line tutorials on each module—all at no extra charge.

Now you can extend the power of your Peachtree accounting to include custom reporting and analysis, and save even more money! Order the Double Bonus Bundle and you'll get Peachtree Complete II, plus Peachtree Data Query II Enhanced, for just \$298.

PDQ lets you turn raw figures into highly sophisticated reports, allowing you safe, easy access to valuable information from all eight Peachtree Complete II modules. PDQ's simple, clear approach gives you maximum control and flexibility. You tell PDQ what information you need, and PDQ looks through your accounting files, finds it, and presents it to you any way you want it—on screen or printed, as a graph, in report form, or ready for export to another software package.

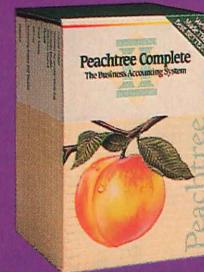
You can begin creating reports in just minutes, thanks to all new user instructions and on-line practice sessions that lead you through the system and build confidence as you go. With Peachtree's Double Bonus Bundle, accounting and custom reporting go hand-in-hand, and that makes good business sense.

MONEY BACK GUARANTEE. We stand behind Peachtree Complete II and PDQ II with a toll-free hotline for technical support (\$1 per minute, \$20 minimum on your credit card) and a 30-day money-back guarantee when you buy directly from Peachtree. If for any reason you're not satisfied, you can return your package within 30 days for a prompt refund. That's the Peachtree Software promise. A \$25 restocking fee applies to all returns.

Peachtree Complete II: The Business Accounting System for just \$199, and Peachtree's Double Bonus Bundle for just \$298. Either way you look at it, Peachtree Software saves you money. Order today!

Hardware Specifications: Requires PC/MS-DOS version 2.0 or higher with 384K of usable memory (512K required with DOS 3.3) and a minimum 10 MB hard disk. For use with the IBM® PC, PC XT, PC AT, Personal System/2™ and compatibles. 3 1/2" media optionally available. Not copy protected.

Lotus 1-2-3 is a registered trademark of Lotus Development Corporation. dBASE is a registered trademark of Ashton-Tate Corporation. IBM is a registered trademark and Personal System/2 is a trademark of International Business Machines.



PEACHTREE COMPLETE II

STILL ONLY
\$199

General Ledger

- Chart of Accounts includes 76 suggested and 26,000 user-defined accounts.
- Comparative financial statements.

Accounts Receivable & Invoicing

- Maintains open item or balance forward customers.
- Up to 14,400 customers.
- Prints product or service invoices.

Accounts Payable

- Partial payments of invoices.
- Up to 14,000 vendors.
- Checks printed with unlimited invoice listing on stub.

Inventory

- Supports average and standard costing methods.
- Up to 19,500 inventory items.

Fixed Assets

- Handles 13,000 assets and 13 methods of depreciation.

Job Cost

- Tracks costs and profitability on a job-by-job basis.

Payroll

- Built-in current year tax tables.
- Prints checks, W-2s and more.
- Processes up to 3,900 employees.

And More!

Call Now to Order
1-800-247-3224

(or call 1-404-564-5800)



To Order by Mail Add \$12.50 Shipping and Handling.*
(In Georgia add applicable sales tax.)

Peachtree Software

4355 Shackleford Road, Dept. HOC, Norcross, Georgia 30093

* Telephone number required on all orders.

Getting Messages While On the Move

BY JOANNE PRATT



If the bonanza of new type fonts out there intrigues you, why not use some of them to redesign your letterhead, advertisements, and brochures? Most of us never think about the visual message we send along with our words, but cartridge and downloadable fonts can provide a powerful way to enhance your business image. Beware—a novice's graphic design attempts can result in a visual mess. Fortunately, help is available. Take a look at Roger C. Parker's *Looking Good in Print: A Guide to Basic Design for Desktop Publishing* (Ventana Press, P.O. Box 2468, Chapel Hill, NC 27515; [919] 942-0220; \$24). The section on design makeovers is especially well suited to the needs of the do-it-yourself business owner; many examples illustrate before and after looks, with detailed rationale for the changes. You'll really appreciate this help if you find, as I have, that you want new typefaces when you buy a laser printer.

Q. I have a PhoneMate answering machine. I recently purchased a GE CF1000 Cellular Carfone and was disappointed to find that the signal generated by pressing the buttons doesn't sound long enough to be recognized by my message machine at home, so I can't call in for my messages. Is such a feature available? It would really help me make house calls more efficiently, especially if a client wants to see me in the area I'm working in that day.

L. GALASSO
Hollywood, Florida

A. You have a great idea that would improve service to your clients as well as your own productivity. What you really need is a car phone that sends a continuous signal as long as you hold down each button. The feature is called real-time DTMF, which stands for dual tone multifrequency. The Oki Telecom 410 with 901 or 903 software, or any of the newest Panasonic models have DTMF.

The problem may also be your answering machine. A GE representative suggests testing one of the newer answering machines with your GE CF1000. There's really no way to know if an answering machine will recognize a cellular telephone tone, so test it in the store before you buy.

You may get a response from your present equipment by using a Pocket Tone Dialer (\$15 to \$40), which emits a continuous touch-tone signal. You dial your phone number, then hold the tone dialer against the mouthpiece of your car phone. You can try this out at Radio Shack.

Meanwhile, test a hit-and-miss method that costs nothing and sometimes works: As you dial, press each digit twice instead of once (for example, press 2244 if your Phone-Mate code is 24).

Q. I'd like to provide a service preparing business plans for start-up businesspeople who don't know how to create budgets, operating plans, loan packages for the bank or S.B.A., and so forth. Are there software programs for such a

Yes, entrepreneurs certainly need the kind of help that you want to offer. The trick will be in convincing prospects to invest in your services. Research your market area thoroughly so you discover in advance if you have any competitors. To attract clients, teach a course at a local community college or adult education center, then follow up on prospects with telemarketing.

Q. I have an Apple IIGS and my sister has a Mac Plus with a hard-disk drive and a LaserWriter Plus. She runs a desktop-publishing business using Aldus PageMaker and has reached the point where she could use some help. Is there any way I could use my IIGS to help?

N. MILLER

Claremont, New Hampshire

A. You can't upgrade an Apple IIGS to a Mac, and, unfortunately, Aldus PageMaker is not available for the Apple II series.

But you can still contribute to the business by writing or editing copy with your own word-processing software. Make sure you're using ProDOS on the Apple II. Save the file as an ASCII, or text, file (your manual should tell you how) on a 3.5-inch disk. Insert your disk directly into the Mac Plus and convert the file using *Apple File Exchange*, a utility supplied with Apple's Macintosh System Software (v. 5.0 and up). If you have an older version of Macintosh System Software, you can upgrade to the latest version, 6.0.2 at an authorized Apple dealership for about \$50. (Some dealers may copy the software for you free of charge.) Your sister can then transfer your file into *PageMaker* and proceed with the layout.

If you want to contribute more to the business than typing copy, add new services the Mac can't handle by producing color images. ■

There's really no way to know if an answering machine will recognize a cellular telephone tone, so test it in the store before you buy.

business? Also, do you have any suggestions on starting this business and do you think there is a market for it? I have Lotus 1-2-3, First Choice, Microsoft Word, First Publisher, Ventura, and PC Paintbrush.

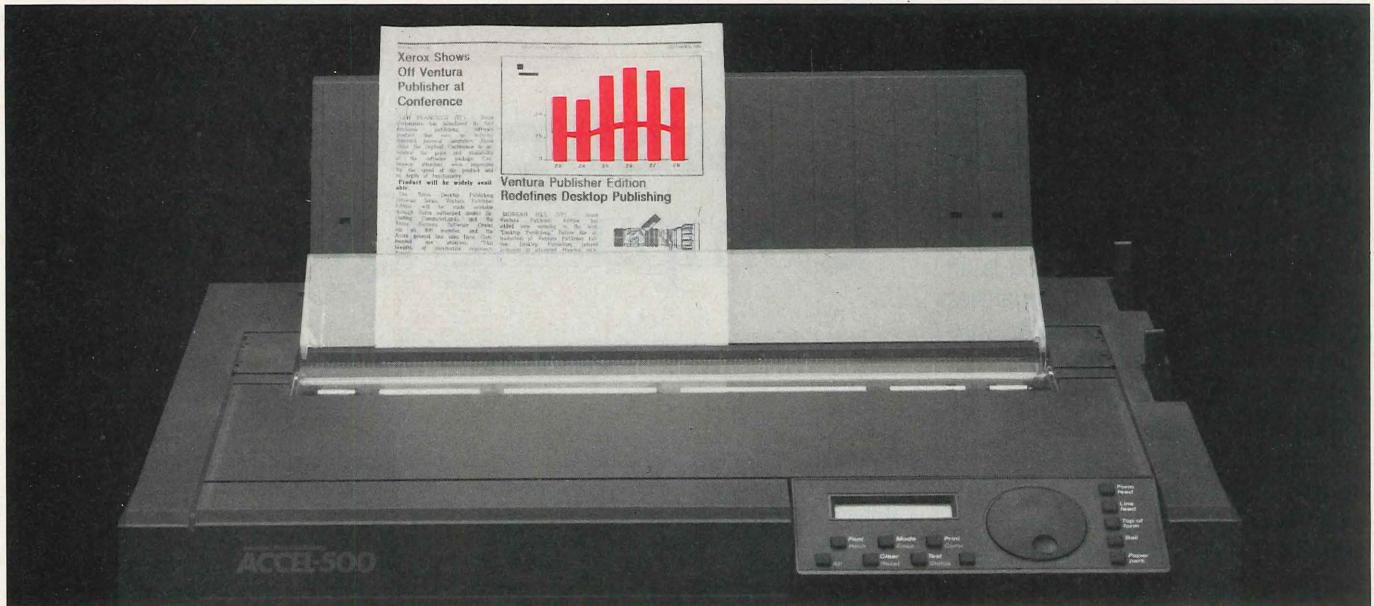
K. WHITAKER
Augusta, Georgia

A. In "Your Business Plan: Road Map to Success" (April 1989, page 49), we reviewed three business-plan software packages—*Business Plan Toolkit* (Palo Alto Software), *VenturPlan* (Venture Software), and *Venture—The Entrepreneur's Handbook* (Star Software Systems).

Charlotte Taylor's book, *The Entrepreneurial Workbook* (New American Library, 1985, \$10), is an excellent planning tool; it provides actual business plans to critique and focuses on crucial points that are often overlooked.

SEND US YOUR HOME-OFFICE QUESTIONS

Send your questions on taxes, legal issues, developing a business plan, capitalizing, marketing and public relations, or any other business-related issues to Joanne H. Pratt, c/o ShopTalk, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. Name, address, and telephone number must be included on all correspondence. Pratt is a nationally known researcher, consultant, and speaker on the subject of home business.



BEST VALUE PRINTER

Order today — try it FREE for 30 days.*

ACCEL-500™ users in large and small companies agree — "...It's the best value printer around!..."

Built tough — built to last

This top performing printer offers you all you need... and more:

- Draft mode (480cps) blazing speed for reviewing draft documents.
- Memo mode (200cps) for internal documents.
- Letter quality (80cps) printing for prestige documents and correspondence.
- Graphics mode — that's right! A rainbow of vibrant colors for presentations, charts, graphs, and even your own direct mail programs.
- Plug-and-run compatibility that plugs right into your PC or Macintosh — virtually any computer or network.

Toll-free helpline

We're with you all the way. The ACCEL-500 comes with a full 2 year warranty. If you have any questions, pick up the phone and talk to our experts. In addition, we provide on-site service that puts an engineer in your office if you ever have a problem.

Three reasons to order today.

1. Order today and we will ship it to you for a 30 day FREE trial. If you're not delighted, simply ship it back and receive a full refund.
2. Order today and we will throw in a full year of on-site service — value \$215.00 — Free of charge.



3. Order today and we will include our Quick Start Kit — value \$150.00 — for just \$25.00. You get software, cable, documentation, supplies and more.

The easy to use printer.

Just place your finger into the ACCEL-500's patented SelectDial™ wheel and turn. Different type styles, speeds, and printing features are right there. And plug-in Intelli-cards™ provide instant software upgrades.

The ACCEL-500 comes with a built-in tractor feed for continuous paper, and will accept optional sheet and envelope feeders. It also comes in a choice of colors; Executive Black and traditional Ivory.

More for your money.

The ACCEL-500 is priced at just \$1,085.00. With your order you'll receive:

- 16K internal buffer.
- Six printer emulations.
- Four fonts.
- Color and black ribbons.
- User and programming documentation.
- Internal diagnostics.

- Special word processing features.
- Graphics capability.
- Store 4 user configurations for quick and easy set-up.
- 17-inch carriage.

ORDER TODAY
Toll free
(800) 637-7878

Call us toll free. We will answer all of your questions and take your order for shipment within 24 hours.* Use your Visa or MasterCard with NO service charge, or alternatively, give us a purchase order number and we'll ship.* Express delivery and quantity discounts available, please ask for details.



Ventura
Peripherals

100 Rancho Road, Suite 27
Thousand Oaks, CA 91362

*On approved credit and subject to availability.

ACCEL-500, SelectDial and Intelli-card are trademarks of Advanced Matrix Technology, Inc. ©1989 Ventura Peripherals. All rights reserved.

Pal Friday™

Pal Friday Office Manager

is the first Expert System for home offices and small businesses. It is an office-proven system that organizes your computer use and smoothly performs many essential office tasks.

Pal Friday does not make your morning coffee—but it does help you:

- Type Quick Memos and Letters (and Fill out Forms w/Daisy Wheel)
- Write Checks, Balance Your CheckBook, and Track Your Cash Assets for up to Four Accounts
- Remember Important Meetings and Recurring Annual, Monthly and Weekly Events
- Maintain Twelve 500-Entry Address Books, and Print Labels, Envelopes, and Mailing Lists
- Dial Numbers from a 1000-Entry Phone Book (with a Modem)
- Log the Time you charge to as many as Twelve Accounts
- Calculate Important Personal Financial Values—Compound Interest, Comparisons of Variable- and Fixed-Rate Amortization, and Pension Plan Projections
- Select Your Other Programs from Its Flexible Menu—and MORE!

Pal Friday is so easy to use, you can install and start it within five minutes!

The **Pal Friday** system, with more than 30 functions, is a \$495 value—yet it costs only \$159.95! (+\$4 S&H, CA Tax)

Requires Hard Disk, DOS 2.1+

Pyramid Software Technology, Inc.
P.O. Box 16305, Irvine, CA 92713
714-832-5505; M/C-Visa: 714-832-7577

Name: _____

Address: _____

City, State _____

Zip _____ Phone _____

No. of Copies: _____ for 3.5" Disk

MasterCard VISA

Card # _____

Bank # _____ Exp. Date: _____

Signature _____

CLINIC

Answers to Your Computing Questions

EDITED BY JEFF DONAHUE

SWAPPING TANDY AND IBM DISKS

Q. I'm a recent convert from an electric typewriter to an IBM PS/2 Model 50, so my computer education has just begun. My son owns a PC-compatible Tandy 1000HX. Both machines use 3.5-inch disks. Will there be any incompatibility if we try to use the same programs?

MICHAEL HARRISON
Mahwah, New Jersey

A. Several problems can come up if you want to trade disks. Read the package labels and the included manuals carefully. If a piece of software (Microsoft's *Excel*, for example) you use on your IBM requires a 286 machine or a high-density disk drive, it will not work on the Tandy. Also, remember that many programs need to be configured to the computer, so you would have to reconfigure every time you made a swap. When swapping data, there is one thing to keep in mind: Despite both computers having the same size floppy-disk drives, the Model 50 has a higher density drive than the 1000HX. If you are going to be sharing data with your son, I would recommend using data disks formatted on the low-density Tandy drive so that both machines can read both disks.

CLONE PROBLEMS

Q. I have been experiencing many problems with my IBM clone. At times, the computer refuses to boot when turned on, and must be turned on and off several times to get going. Occasionally, I get as far as the message MCT BIOS, VERSION 3.1 and the cursor will blink, but I can't input anything. And, finally, the computer will sometimes stop booting and give the message I CANNOT CONTINUE WITHOUT A DISK. I have tried booting from the floppy drive without success. Has the hard-disk drive died? What are my options?

FRED WIDMOYER
Las Cruces, New Mexico

A. It sounds as if one of three things may be wrong: First, it's possible that the system files on your hard-disk drive are damaged, and that when you try to boot from the floppy drive you aren't using a system disk (it's very easy to forget to do a simple thing like this). If this is the case, you can get your data back using a good software utility and put it on

floppy disks, reformat the hard drive, install the system files, and then put your information back on.

If you already tried getting your computer started with a system disk and failed, you have a more serious problem and should get a professional to take a look at your machine. The least serious problem would be if your machine's disk-controller card went bad. This is not too horrible because all your stored data will probably be all right once the card is replaced. Talk to the dealer from whom you bought your computer or call the manufacturer and talk to a technical person to find out where you can get a new one.

A more serious problem is if your hard drive is physically damaged. To get your data back, you would have to make use of a hard-disk recovery house (see *Clinic* in the January issue).

CORRECTION

Thanks to reader Ron Legro for bringing to our attention an inaccuracy in our December issue concerning memory expansion of the IBM PCjr. He pointed out that the original PCjr equipment and some third-party products used soldered chips, but there are a number of other memory devices that use socketed RAM. Indeed, our error occurred because we inspected our older PCjr models. As many current PCjr owners are aware, with the help of internal and external add-ons it's possible to install up to 512K of RAM in a PCjr. For two good catalogs of PCjr accessories you can contact PC Enterprises (P.O. Box 292, Belmar, NJ 07719; [800] 922-PCJR) and Computer Reset (Dept. HOC, P.O. Box 461782, Garland, TX 75046; [214] 276-8072).

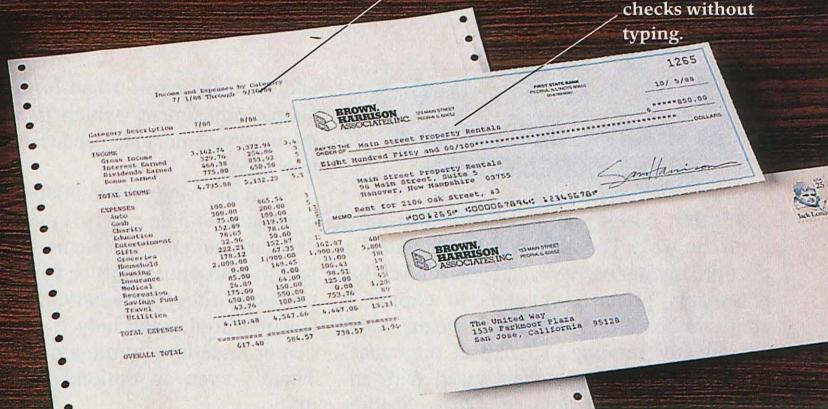
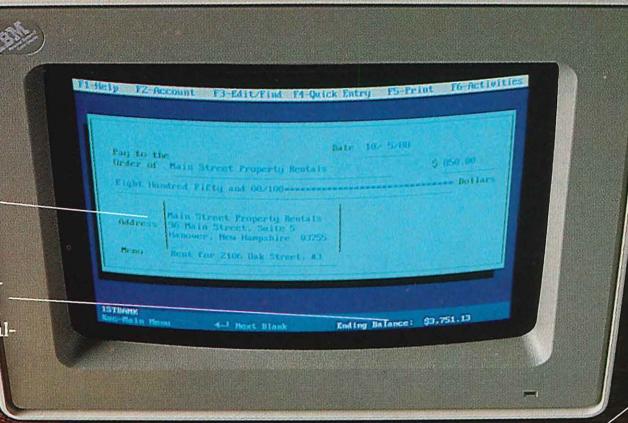
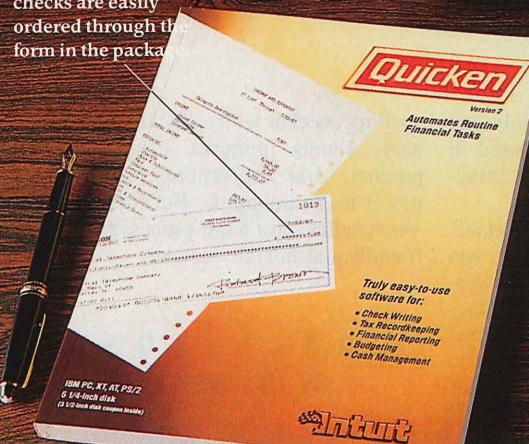
If you have technical questions or computer ailments that need diagnoses, our technical staff will try to help. Although we cannot answer each letter personally, this column will deal with frequently asked questions and common problems. We reserve the right to edit letters for length and clarity. Please include your name, address, and phone number with all correspondence. Send your letters to Clinic, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003.

Now
Links with
Tax Software

Quicken is easy because it looks like your paper checkbook. There's nothing new to learn.

Quicken prints checks even on laser printers. Preapproved by all financial institutions, Quicken checks are easily ordered through the form in the package.

Quicken automatically updates your check register, recalculates balances, and prints your checks.



Stop Taxing Yourself. Quicken® \$49.95

Quicken® is the fastest, easiest way to do your personal and small business finances. You'll slash time and effort every month, plus have perfectly organized financial records. Now instead of dreading tax time, you'll save even more hours, because Quicken links directly to the top selling tax software, J.K. Lasser's *Your Income Tax*™ and Turbo Tax.™

Forget Financial Hassle

Quicken is so automatic, it does your monthly financial work for you. It actually learns your regular bills. Just confirm the payment amounts on your auto loan, utilities, and other bills. Quicken does 14 bookkeeping steps and hands you the printed checks already addressed for mailing. All you do is sign them and seal the envelopes.

Automate Your Taxes, Too!

Quicken saves you hours at tax time, because all your tax information is right at your fingertips. It prints itemized lists supporting tax deductions in just seconds. Or, you can let J.K. Lasser's *Your Income Tax* and Turbo Tax, quickly and accurately read income and deductions from your Quicken records and directly transfer that data to your tax forms.

Know Your Financial Situation in Seconds

Quicken gives you detailed reports such as budget vs. actual comparisons, income and expenses by category, accounts payable, accounts receivables, or P&Ls, on screen or on paper, almost instantaneously.

The World's #1 Selling Financial Software

Here's why Quicken is the world's most popular:



Quicken is about as good as software gets: powerful, affordable, and easy to use.

Bill Howard
Executive Editor
PC Magazine

No Accounting Mumbo Jumbo

Quicken is as easy as the pen and paper you use now. You'll see the familiar checkbook and check register right on your screen. The only thing that changes is how fast you finish your financial chores. This is bookkeeping that's totally hassle-free.

For Personal and Business Use

No other financial software provides more flexibility to handle the wide range of personal or business needs. Quicken is for service and

Specifications

Software Compatibility: Exports data and reports in ASCII format. Also exports in Lotus® format with optional Transfer Utility.

Hardware Compatibility—Regular Version: All IBM® PC, AT®, PS/2®, and

compatibles with 256K RAM and DOS 2.0 or higher. All printers. All monitors. **Hardware Compatibility—DeskMate Version:** Tandy 1000 SL with 384K RAM or IBM PC, AT, PS/2, and compatible computers with 512K RAM and DOS 2.0 or higher. All printers. All monitors (monochrome monitors require a Hercules or compatible graphics card).

Also available for Macintosh® and Apple II.®

Capacity: Unlimited number of bank accounts. Unlimited number of transactions.

Maximum amount: \$9,999,999.99.

Other: Unlimited FREE technical support. Not copy-protected. Checks are pre-approved by all financial institutions in the U.S. and Canada. Sample checks and order form are enclosed in Quicken package.

manufacturing businesses, doctors, consultants, designers and retailers, as well as for households. Quicken is ideal for anyone who wants relief from bookkeeping hassles.

Try Quicken FREE for 30 Days

Order Quicken today from the coupon below, or through our toll-free 800 number. If you're not completely satisfied with Quicken for any reason, simply return it for a full, no-questions-asked refund.

Quicken

\$49.95

I want to try Quicken on your no-risk 30-day guarantee. If I'm not completely satisfied, I may return it within 30 days for a full refund. Quicken, \$49.95 plus \$3.00 shipping and handling. California residents add sales tax.

Call 800-624-8742

or send this coupon with your check or credit card number to Intuit.

Name _____

Address _____

City _____

State _____

Zip _____

Phone _____

5 1/4" disk

3 1/2" disk

Regular IBM version

DeskMate version

Transfer Utility to Lotus (optional, \$19.95)

Check enclosed (no purchase orders, please)

Visa MasterCard Am Ex

FCO589

Card No. _____

Expiration Date _____

Intuit

540 University Avenue
Palo Alto, California 94301

Portable Overhead Projector for IBM PC

New Mac IIcx

Printing with Your Apple II

IBM / MS - DOS

BY HENRY F. BEECHHOLD &
STEVE MORGESTERN

A 33MHz, 64-bit microprocessor from Intel is on the way. The i860 will be available in the third quarter of 1989, and you can bet that reasonably priced computers to exploit it aren't far behind. Prototypes of the machines are already running, so expect announcements soon. Combine their speed with advanced three-dimensional graphics capabilities and you'll have computing power that we wouldn't have dared to dream of even a short while ago. —H.B.

OS/2 Out of the Doldrums. There's a lot of OS/2 activity among software developers these days, and OS/2's luscious windowing interface, called Presentation Manager, has made the transition from vaporware to realware. To use OS/2, you need a 286 or 386 computer with a couple of megabytes of memory. I predict that within a year, OS/2 will have become established enough in the marketplace to relegate MS-DOS/PC-DOS to the annals of history. IBM has released a new version of DOS and intends (so they say) to continue upgrading, but what will they say in another year? —H.B.

Dog-and-Pony Shows. If you want to make computer-based presentations at meetings, check out the MagnaByte Model 5040 (Telex Communications; \$1,395). It's an LCD panel that sits on a standard overhead projector and lets you project your computer-screen display on a screen or wall using combinations of magenta, blue, and yellow.

The unit is lightweight (about five pounds) and solidly built. Best of all, you don't need the special interface card or software required by some other LCD projection devices to use the MagnaByte 5040. Just plug its cable into your regular CGA monitor port

HENRY F. BEECHHOLD is the author of The Brady Guide to Microcomputer Troubleshooting & Maintenance (Brady Books, Prentice Hall Press, New York).

STEVE MORGESTERN can be reached on CompuServe (ID:72545,606).

and start the show. I had to make only one simple adjustment (which is now stored in the unit's memory) to produce a crisp, attractive image.

With the MagnaByte 5040 and a portable computer with an external monitor port, you can carry an entire computer exhibition system to your client's office for your next dog-and-pony-show presentation. It's also a great teaching tool, especially if you're trying to demonstrate how to run a piece of software. There's even an optional wireless control unit. —S.M.

Writers Who Do Windows. The Microsoft Windows environment continues to attract new users, primarily because of the high quality of the programs designed to run under this graphic interface. For power spreadsheeting there's Microsoft Excel. For page layout there's Aldus PageMaker, and for graphics applications there is a wide variety of choices, including Adobe Illustrator, Computer Support's Arts & Letters, and Micrografx Designer.

Now Samna, whose character-based word processor has always been stuck in the second tier, has introduced the first viable word-processing software for Windows. It's called Ami, with an accent over the *i* to give it a little flair and prevent it from being pronounced Amy (Ami is French for friend). When you work with Ami, though, the accent is on producing highly formatted documents—with a minimum of fuss and bother. The screen display shows words on a white background, with accurate renditions of typefaces (see Word Processing in June issue for more about Ami).

Another notable Ami feature is the capacity to create multiple, independent frames on your page. Each frame functions as a mini page, which can contain an imported graphic or a multiple-column text block and be boxed or shaded as you like. You don't get the degree of precision you would in a full-fledged desktop-publishing program, but the frames feature is just fine for putting together an illustrated report or a simple newsletter.

Ami lacks several high-end word-processing features, such as footnoting and a built-in thesaurus; but it does boast a good

spelling checker with a 130,000-word dictionary. Samna promises a more advanced product, Ami Professional, to satisfy the power users among us. But for under \$200, Ami handles most word-processing needs in a friendly and flexible manner. —S.M.

MACINTOSH

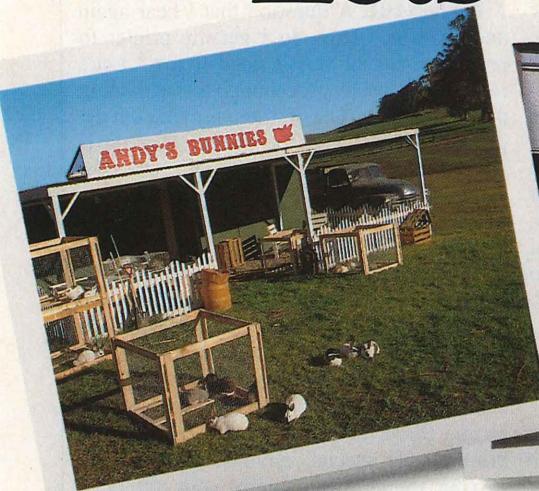
BY JIRI WEISS, JR.

Apple has released a modular Mac that is destined to become more popular than the Mac II, especially if Apple keeps its promise to sell it for about the same price. The new Macintosh IIcx is based on technology very similar to the Mac IIx's and the recently introduced SE/30's: a 15.7 MHz 68030 processor; a math coprocessor; and a Superdrive floppy drive which packs 75 percent more information than a standard SE or Mac II diskette and can read and write IBM MS-DOS or OS/2 files.

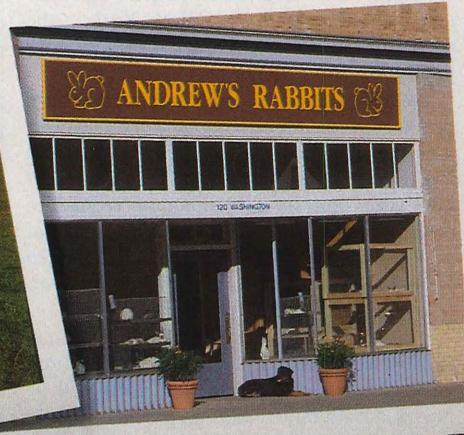
The Mac IIcx has three expansion slots as opposed to the six in a Mac II, but that should be enough for all but the most technical users. Standard configurations are expected to include a 40MB hard disk with 1MB of RAM, and an 80MB hard disk with 4MB of RAM.

The technology may not be revolutionary, but the Mac IIcx's modular design is something else. For starters, the new Mac IIcx design weighs about 10 pounds less and has a footprint that's six inches thinner than the Mac II's. The cooling system has been designed (with a quiet fan this time) so that you can place the Mac IIcx horizontally on your desk with the monitor on top or on its side next to the monitor, without worrying about blocking vents. Or you can put the Mac IIcx on a mounting bracket beneath your desk. Adding RAM, a new hard disk or an extra board should be a snap because each component on the new Mac is designed as a self-contained unit. Remove one screw and the whole thing comes apart. You or your dealer can slide in a new hard drive or pull out a faulty power supply or motherboard without worrying about cutting something.

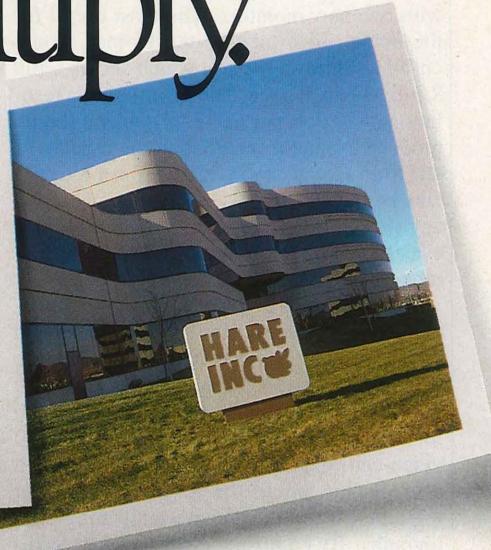
Accounting Software So Sophisticated It Even Lets You Multiply.



Small business will get off to a jackrabbit start with ACCPAC® Easy.



As your business grows by leaps and bounds, move up to ACCPAC BPI®.



Even the most sophisticated breed of business is handled by ACCPAC® Plus.

The simple truth is, the business of business is to grow. The sad truth is,

most accounting software can't handle that. Built-in obsolescence seems to be a standard feature.

Which is one of the most compelling reasons to consider the ACCPAC® line. Because it is precisely that: a line. A smooth, efficient path for expansion. Allowing you to transfer data when you trade up.

The starting point is ACCPAC Easy, our primer. Offering "excellent audit trail features," according to *Software Digest*.

And here's where you trade up to: our five module workhorse, BPI Accounting. *PC World* calls BPI "an outstanding value."

Finally, our powerhouse, ACCPAC Plus offers predesigned, off-the-shelf solutions for a wide variety of businesses. Rated "best in its class" by *InfoWorld*, Plus offers the ultimate in control.

And we offer even more.

Like significant rebates for the ACCPAC software you already own. And the stability and support that come from the world's leading independent software company.

Call 1-800-531-5236. In Canada call 1-800-663-6904.

We'll tell you more about ACCPAC, our rebate program and what we can do for your business. Namely, help it grow.

**COMPUTER
ASSOCIATES**
Software superior by design.

©1989 Computer Associates International, Inc. 1240 McKay Dr., San Jose, CA 95131

The Macintosh II was designed in a hurry as Apple was scrambling to turn things around in 1985. But Apple's design group took its time with the Mac IIcx, according to Chris Espinosa, Apple's product marketing manager for advanced technology. Apple CEO John Sculley considers the new Mac the most significant design the company has introduced recently.

New Monitors. Apple is also coming out with two new monitors. The most useful for the home office may be the 15-inch monochrome Portrait Display, which shows a full 8.5-by-11-inch page. The monitor has a resolution of 80 dots per inch (dpi), which should produce a sharper image than the regular 72 dpi Mac screen, and a high refresh rate (75 Hz) so there is almost no chance of seeing any flicker. These features should eliminate eyestrain, which can be a problem with large monitors, according to Apple.

Apple's new 21-inch Two-Page Monochrome Monitor has similar capabilities and displays two pages of text. Prices, including video cards, will be in the \$1,500 to \$1,800 range for the Portrait and \$2,600 to \$3,000 for the Two Page. When used with a \$150 video-card expansion kit, the monitors will also display up to 16 levels of gray, an important feature if you are retouching photographs. By comparison, the popular Radius Full-Page Display lists for \$1,790 (with a Mac II video board) and has no gray-scale capability.

Mac Databases. *DAtabase* (Preferred Publishers, Inc.; \$130) is actually three different programs. The desk accessory lets you retrieve and store your information; an application called Builder allows you to design business forms or screens with *MacDraw*-like tools; and a translator lets you import files from other programs, for example, a mailing list you have created with *QuickDex*. To convert a *HyperCard* database, you need only add a special button to your stack. *DAtabase* can also convert stored information into a file format that can be used in applications such as *Microsoft Word* to do a mail merge, for example (other file formats you can translate your data into include *WriteNow*, *Excel*, *Double Helix*, *More*, and *4th Dimension*).

The publishers of *DAtabase* point to the program's similarity to *HyperCard*. It uses the same card metaphor and, though there is no scripting language like HyperTalk, users can attach external routines just as they can with *HyperCard*. The company wants to encourage hackers and developers to build *DAtabase* templates others can use.

ProVue Development, Inc., the company that gave us *OverVUE*, takes the spreadsheet database further with an application called *Panorama* (\$395). As with a spreadsheet, you can enter formulas and make calculations on rows and columns of your *Panorama*

database. The application also has a macro capability. You can record your own macros or use *Panorama*'s macro language. But *Panorama* also includes features not common in spreadsheets: It stores graphics. It can also customize reports and forms with an array of graphics tools and do a mail merge.

At least one feature is guaranteed to raise eyebrows: the product's "clairvoyance." No, it won't foretell the future, but it does try to predict what you are going to type next. It works like this: You start typing a frequently repeated entry such as "New York;" the program will attempt to finish it for you after you type a few letters.

Hand-Held Scanner. LightningScan (ThunderWare, Inc., \$549) is a hand-held scanner you can use with a desk accessory to scan logos or other art from a book or magazine into your desktop-publishing or word-processing application. It scans at 32 levels of gray and up to 400 dots per inch—crisp enough, the company says, to use with *Read-It!* and *Omni Page*.

ThunderWare also sells ThunderScan (\$249), a low-cost scanner that uses an ImageWriter. The new release lets users with a gray-scale monitor edit gray-scale images and save them in formats which can later be processed by such programs as *ImageStudio* or *PixelPaint*.

JRI WEISS, JR. is a freelance writer based in Berkeley, California, and can be reached at MCI mailbox JWEISS.

APPLE II

BY CHARLES H. GAJEWAY

It's pet peeve time. The Apple IIe and IIc have a design flaw that's made me crazy since the warranty on my first machine expired, and it's a problem shared by Laser 128s as well. Simply put, these machines are messy, sprouting a rat's nest of cables, wires, and power cords.

Now, I'm not a neat freak, but I maintain a five-system computer lab in my home office, and the mess that surrounds the Apple II is unsightly. I once had a computer desk that hid most of the mess, but I had to take everything apart each time I changed even a switch setting.

TELEPHONE NUMBERS

Apple Computer Inc. (408) 996-1010
Preferred Publishers, Inc. (800) 446-6393; in Tennessee (901) 683-3383
ProVue Development, Inc. (714) 892-8199
Samna (404) 851-0007
Telex Communications (800) 828-6107; in Minnesota (612) 884-4051
ThunderWare, Inc. (415) 254-6581

Please tell me: How do you manage the wires that are too long to fold and tuck under a monitor, or the disk-drive cables that stick out behind a IIc, or the bundle of stiff power cords massive enough to handle a large air conditioner? How do you deal with the cute, but awkward and space-consuming, profile of a IIe, or the unstable handle prop of a IIc or a Laser 128? Send your solutions to me via MCI Mail and I will share the best ones in a future column. It's time to clean up the mess, and I need everybody's help.

Printing 101. A question that I hear again and again is "How do I get my printer to print the special way I need it to?" Let's review the basic procedures for activating printer features. The first step is to dig out the printer manual, find the chapter that deals with control codes and features, and take careful notes.

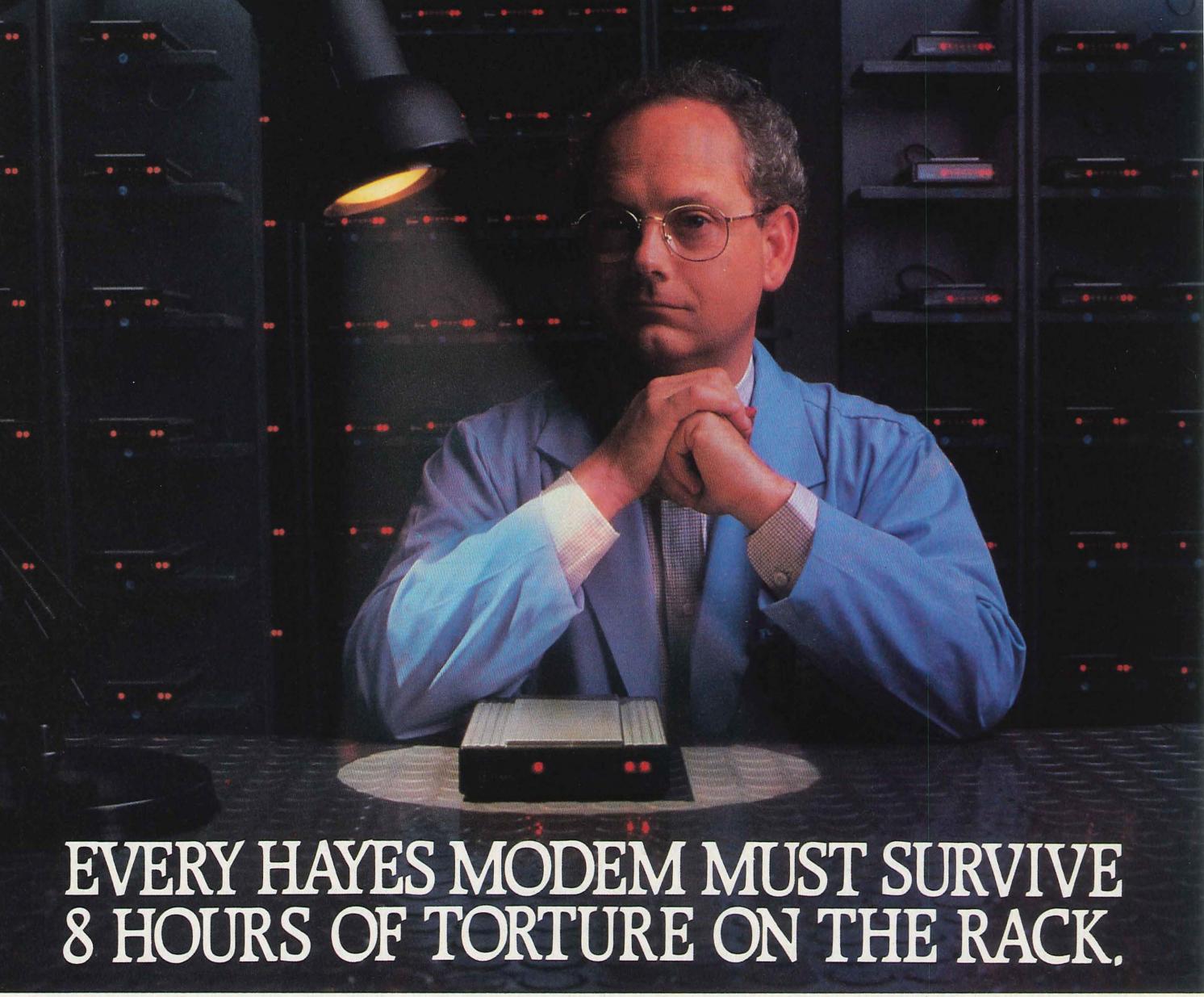
Computers and printers use ASCII character codes to talk to each other. Some of these codes activate printer features directly (ASCII code 8, for example, is a backspace), but most printers utilize what are called escape codes to activate such commands as bold-face, underline, and italics. These signals are called escape codes because the nonprinting escape character (ASCII code 27) warns the printer that a special command is coming.

Your software can control your printer in one of two ways. The more flexible way is with a printer action table (PAT), which specifies standard printer options, then allows you to assign your printer's control codes to the corresponding option. This is a good method because your document contains standard formatting commands and can be used with any printer as long as a PAT has been defined for it. *AppleWorks* uses this method, allowing you to select from several printers.

The second method is to embed codes in your document. Generally, this involves typing a control keystroke, followed by the escape sequence, and then another control keystroke. This method works, but what you see is not what you get, and it's definitely printer specific. It does, however, let you use printer features which aren't covered by the PAT, and allows you to define print attributes without having to exit your document. *AppleWorks* word processing also allows for embedded codes.

Practical Advice. Dust covers are inexpensive insurance. I use plastic dust covers on all my printers, and more than once they have prevented a spilled cup of coffee or can of soda from being a real disaster. I'm now ordering covers for my keyboards as well. I suggest you follow suit; you'll be doing yourself and your system a favor. ■

CHARLES H. GAJEWAY can be reached on CompuServe (ID: 73357,3577) or on GENIE (ID: C GAJEWAY).



EVERY HAYES MODEM MUST SURVIVE 8 HOURS OF TORTURE ON THE RACK.

The Rack. It's 8 straight hours of burn-in testing. Yet only one of many trials every Hayes modem must go through before it's packed and shipped.

In all, there are over 20 tests and inspections for quality and reliability. Thus allowing us to offer the most comprehensive performance warranty in the business.

Today, while all too many manufacturers are content to perform only the most perfunctory tests on their products and then only on a random

basis, we believe in testing all of our modems.

With no exceptions.

At Hayes we've been making dial-up data communications as common and as reliable as ordinary phone calls for over a decade. Whether PC-to-PC, PC-to-Host or PC-to-LAN, Hayes has set the standards.

And we intend to let nothing lower those standards. Especially one of our own modems.



For your nearest Hayes dealer, call 800-635-1225. Hayes Microcomputer Products, Inc., P.O. Box 105203, Atlanta, GA 30348.
© 1989 Hayes Microcomputer Products, Inc.

CIRCLE READER SERVICE 48

Hayes®

Writing Your Way

BY CHARLES BERMANT

How Customizing Keyboard Commands Helps You Work More Efficiently

Word processors are the most personal of computer applications, and partisans will work themselves into a lather about the strengths and subtleties of *their* program. An individual's devotion to any program is determined by how well its features suit his or her needs; therefore, a word processor succeeds or fails mainly on its ability to give people what they want.

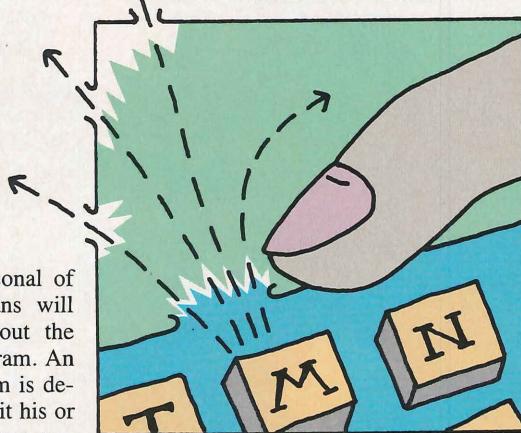
Successful word processors, then, strive to become all things to all people. For example, *WordPerfect* and *Microsoft Word*, the acknowledged top two, are multidisk behemoths that offer nearly every writing feature known today. As word processors have grown in scope, it has become clear that a program should adapt itself to the user and not the other way around. Nowadays, many MS-DOS word processors—including *Sprint*, *XyWrite III Plus*, and the two already mentioned—offer alternate paths to the same command through a blend of function keys, menu choices, mouse clicks, and CTRL-letter-key or ALT-letter-key combinations. For some people, particularly beginners, all these options can cause confusion; others find freedom in the multiplicity of choices. In either case, letting you reassign commands to keystrokes of your own choice has become a feature likely to contribute to a word processor's success—and, more important, to your success with your word processor.

WORK FASTER YOUR WAY

There are four good reasons to reassign a word processor's commands (also called *remapping the keyboard*), so that one key assumes the functions of another:

- You can emulate another program, your old word processor perhaps, and shorten the learning curve on your new one.
- Once operating your word processor has become old hat, you can provide shortcuts to often-used functions and streamline everyday tasks.
- If you find it tough to remember a particular command, especially one you need

CHARLES BERMANT wrote the "Buyer's Guide to Laptops" in this issue.



frequently, you can reassign it to a keystroke combination that stays in your mind.

- Remapping can also provide help for someone who has a physical problem that makes normal typing difficult.

Oddly enough, keyboard remapping began as a competitive tool meant to seduce people away from their current programs. *WordStar*, the program everybody loves to hate but cannot leave, drove the remapping trend. Borland's *Sprint*, for instance, lets you emulate *WordStar* keystrokes to ease the move from one program to the other (see *Word Processing* in the April 1989 issue). If, for example, you would rather tap *WordStar*'s CTRL-K, then D command to save a file instead of *Sprint*'s CTRL-F2, *Sprint* will accommodate you.

Remapping does more than mimic other programs. With the myriad features in a high-end word processor, there has to be a way for people to separate and emphasize their own needs. Take *Microsoft Word* 5.0, where CTRL-F9 kicks up a dual-page preview. If you don't regularly need to preview your printouts, this useful function-key combination can be assigned to a command more relevant to your workstyle.

A word processor's macro function, a cousin of remapping, lets you record a command or a series of commands and then assign them to a key or key combination of your choice. This can be mnemonic; for instance, ALT-A might insert your return address and a salutation.

HOW OTHERS BENEFIT FROM REMAPPING

Uses of remapping vary. Take David Gunnell, a software engineer for Star Technologies, Inc. in Leesburg, Virginia, who fiddled with *Sprint*'s macro function long enough to bring life to some heretofore unused keys. "In my case, it makes sense to have Num-Lock and Scroll-Lock be assignable," he

said. "Those keys should serve some purpose." Gunnell's primary remap motivation was mimicry—to make the PC's numeric keypad act like the VT-100 terminal often used with VAX minicomputers.

Ernie Wallengren, supervising producer for television's "Murphy's Law," uses *XyWrite* to suit the peculiarities of script-writing formats. Different—yet consistent—margins and formats are required for action, dialogue, and other categories. One keystroke sets the stage for each portion of a script.

David Birnbaum, a Harvard University research fellow, edits medieval manuscripts in a variety of languages and alphabets using *XyWrite*. He sets certain keys to toggle among the various character sets—in the Roman, Cyrillic, and Greek alphabets—and has mapped a number of his own language-specific commands that let him insert foreign accent marks or even entirely new characters. He notes, "I'm a fast typist and I adjust easily to new layouts." Not all people have such good memories, so *XyWrite*'s custom keyboard files have accompanying lists that display the modified key layout on-screen.

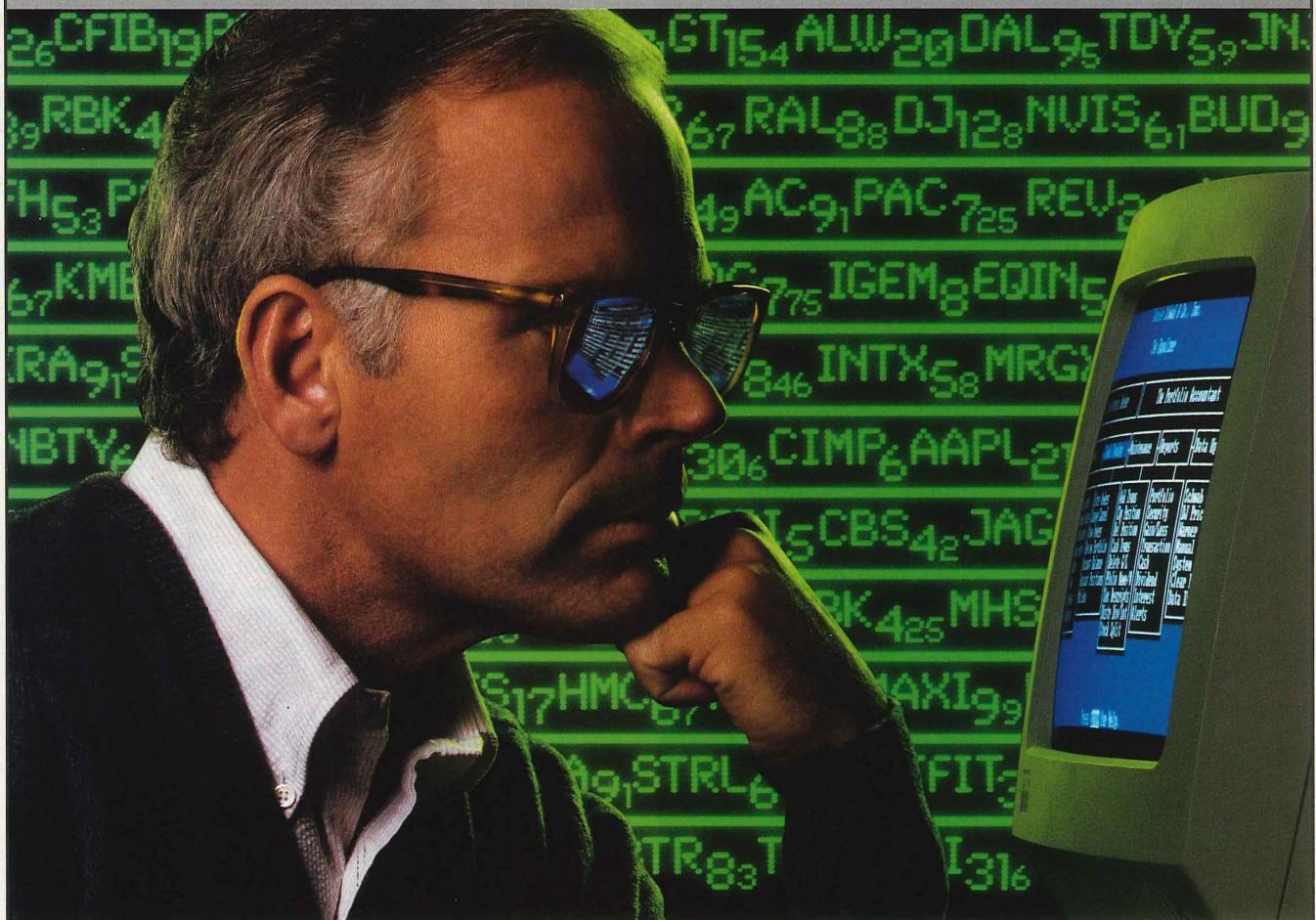
Many foreign-language requirements are less sophisticated, such as the need for a cedilla—a diacritical mark placed under a letter, such as the *c* in *façade*. Read Gilgen, director of learning support services at the University of Wisconsin in Madison, supervises the college's 800 computers. He uses macros to add such subtleties as accents and Greek characters needed for language and science applications. Although partial keyboard remapping is within nearly anyone's grasp, Gilgen underscores why extensive remapping has a way to go before everyone does it: "The capability to do these things is there, but people won't bother to install it for themselves," he said. "They want someone else to do it for them."

BUILDING YOUR OWN SYSTEM OF COMMANDS

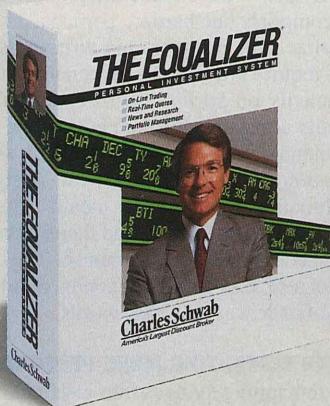
Still, doing a keyboard remap for yourself, even by just assigning one or two keys to often-used functions, can give you a lot more control over your word processor—and therefore over your work. Here's what I mean:

Pressing function keys, or ALT and CTRL coupled with letter keys, is the main method of commanding most MS-DOS word processors (on the mouse-driven Macintosh, keyboard commands are only the secondary means). The 10 function keys offer 40 different combinations either by themselves or

ANNOUNCING VERSION 2.0



Try the software that works the way an investor thinks.



Now, everything you need to become a more organized, better-informed investor is

in one easy-to-use software program.

Do your research and make your own investment decisions easier and faster than ever with The Equalizer® personal investment system, Version 2.0, from Charles Schwab.

Move back and forth from news to research to quotes to portfolio management to online trading—in seconds with your personal computer and The Equalizer program.

**Special Offer: SAVE \$100, or
get a FREE 2400 baud modem when you order.**

For a FREE brochure,
call now:

1-800-472-3800

NAME _____

ADDRESS _____

CITY _____

STATE/ZIP _____

PHONE ()

DAY

EVENING

(Please print clearly)

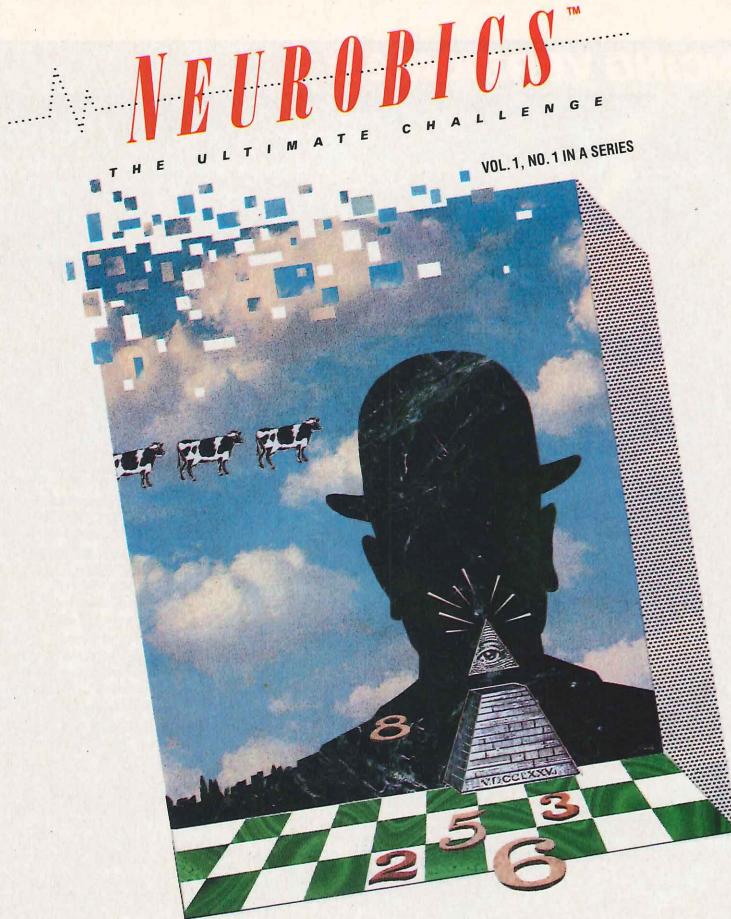
101 Montgomery St., Dept. S
San Francisco, CA 94104

Charles Schwab

America's Largest Discount Broker

Charles Schwab & Co., Inc., does not make investment recommendations or endorse any particular source of investment advice.

FHVC



GIVE YOUR BRAIN A WORKOUT!

Neurobics is... "AEROBICS FOR YOUR MIND!" Each game is a mental exercise that can improve your short-term memory, focus your concentration and increase your problem solving skills.

Go Ahead — Take the Challenge.

Neurobics features six game puzzles, each with over 25 levels of play.

Get Sharp. As your skill and playing levels increase, you will actually be improving your mental dexterity.

Have Fun. Neurobics is not all work. The games change every time you play; and with the different levels of play, Neurobics is fun for the whole family to use.

Get your neurons moving with Neurobic exercises!



"I am genuinely impressed by Ocean Isle's new software program. Neurobics represents a new category of entertainment/educational software that provides exercise for the brain."

—Dr. Joyce Brothers



Dealer Inquiries Welcome.

For Information, Phone:
(305) 743-4546

Ocean Isle Software, 697 Copia D'Oro, Marathon, FL 33050

when paired with the CTRL, ALT, and SHIFT keys (for instance, the four possibilities linked to function key 5 are: F5, CTRL-F5, ALT-F5, and SHIFT-F5). In many word processors, every combination is preassigned to specific functions, yet much of the program's power may be accessible only via complex combinations.

The two extra function keys, F11 and F12, on the enhanced keyboard offer another eight combinations. Here the possibilities are not likely to be precluded by preassigned functions, since until the 12-function key setup reaches critical mass among users, few software publishers will lock features into those keys. That makes the F11 and F12 keys perfect for assigning your own commands.

Reassigning the meaning of function keys is only the beginning. In some programs, you can assign CTRL or ALT—combined with letter keys—and attach them to macros. With such a setup, you could build your own mnemonic system: CTRL-S could represent Save, CTRL-P Print, and CTRL-F Find. Or you could opt to shorten a more obscure pattern of commands by tying an often-used complicated sequence to a single keystroke.

XyWrite III Plus, a favorite of professional writers, incorporates keyboard-remap abilities that have driven use of the program for several applications, from sending manuscripts through complicated printing procedures to laying out crossword puzzles. When *XyWrite* boots up, it can load a keyboard (.KBD) file into the program if one is present in the same directory. *XyWrite* supplies several such files to match different purposes, or you can create your own by updating the keyboard file, which is a text file, just as you would a standard document.

Programs newer to the remap concept, such as *Sprint*, have made the process easier to accomplish but harder, perhaps, to conceptualize. For instance, my writing assignments require articles of a certain length, so I rely heavily on *Sprint*'s word-count feature, normally accessible through F2 (for the glossary menu) and then WC for word count. This corner was cut through the Assign to Key function in the same menu. After its prompt, I pressed ALT-C and then clicked on the WC command with the mouse. The entire process took less than 20 seconds, and I now have a faster way to count words.

MAKING COMPUTING MORE PERSONAL

As remapping evolves into a standard feature, any program will be able to turn any keystroke into any function. This will provide two clear advantages for users: Selection of a product will be based on power and ability rather than keystroke cosmetics, and programs will be easily tailored to thought patterns and work habits.

And both will make a personal computer's word processor even more personal. ■

INSTANT BIBLE ACCESS - ONLY \$49



QUICKVERSE BIBLE CONCORDANCE

QUICKVERSE BIBLE CONCORDANCE is a fast, easy-to-use tool for general Bible study and in-depth Bible research. QUICKVERSE puts the complete text of the King James, New International, or Revised Standard Version of the Bible at your fingertips, allowing you to:

- Instantly locate any word or verse in the entire Old and New Testament in only tenths of a second - as fast as any Bible research program available today - or faster.
- Perform partial phrase or word searches. For example: searching for **Bapt* With** would locate any verse containing **Baptize With**, **Baptized With** and **Baptizing With**.
- View verses in context. You can easily browse back and forth through surrounding verses and chapters.
- Limit your searches to a particular range of books, chapters or verses.
- Print passages with the search phrase in bold type, and with words added by the KJV translators in italics.
- Supports all popular printers.
- Export passage selections to a file for use with your favorite word processor.
- Display or print scripture in several popular formats (e.g. verse reference following or in front of passage, etc.).

Hard to believe the \$49 price? Don't worry, Parsons Technology is known for software that outperforms products costing much more. And the QUICKVERSE BIBLE CONCORDANCE is completely guaranteed. **If you're not 100% satisfied, return the QUICKVERSE BIBLE CONCORDANCE within 30 days for a full refund** (excluding shipping).

Available in IBM or Macintosh versions, with printed manual. Not copy protected.

For Same Day Shipping
VISA, MASTERCARD & C.O.D. ORDERS CALL

1-800-223-6925

(In Canada, call 319/395-7300)
Weekdays 8:30 a.m. to 9:00 p.m. CST
Saturdays 9:00 a.m. to 5:00 p.m.
Or send check or money order payable to Parsons Technology.



Dept. H
375 Collins Road NE
Cedar Rapids, Iowa 52402

NOT COPY PROTECTED
INCLUDES PRINTED MANUAL

Customer may select:

- King James Version
 New International Version (Add \$10 publisher's royalty)
 Revised Standard Version (Add \$4 publisher's royalty)

Then select IBM or Macintosh version:

- IBM or Tandy version Macintosh version

NAME _____

ADDRESS _____

CITY _____

STATE/ZIP _____

CHECK MONEY ORDER VISA MASTERCARD

CARD # _____ EXP. DATE _____

Iowa residents please add 4% sales tax. Orders outside North America please add \$10 shipping and handling.

IBM version requires IBM, Tandy or compatible computer with 256k or more memory, two floppy disk drives or floppy disk drive and hard disk drive, and DOS Release 2.0 or later. (A hard disk drive is recommended but is not required.)

Macintosh version requires 512k or more memory and works with any disk drive configuration.



375 Collins Road N.E.
Cedar Rapids, Iowa 52402

Forms for Every Function

BY STEVE ROSENTHAL

Software Can Help You Make Professional-Looking Forms

In the world of business, forms seem to be everywhere. Whether they're from your own company, an important supplier, or the government, there's nearly always some form to fill in. Fortunately, computerized help is now available for designing and maintaining business forms.

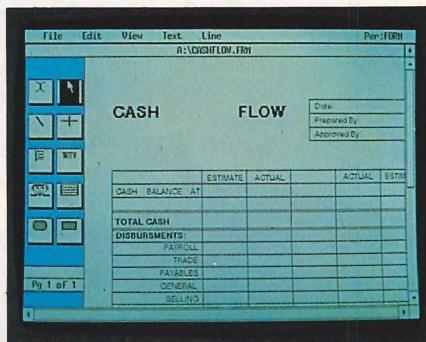
Small businesses that don't have a bureaucracy or a lot of internal reporting requirements often need these packages the most, say users. Sarah Holbrook, a tax consultant, bookkeeper, and Enrolled Agent, needs forms simply because "my clients need them." Anyone who does business with large firms, pays taxes, or deals with the government can attest: Forms are inescapable.

High-quality forms are also vital, especially for a small business that competes with large organizations with staffs that do nothing but design and produce forms. "The way your forms look reflects on your company," says Bill Shanner, the president of a small San Jose, California, firm called Tempo Environmental Corporation that does big business in electronic production equipment. Shanner says that any piece of paper a potential customer might see communicates his concern for quality. Using a forms package called *Per:FORM*, his company not only produces first-class forms for regular use, but because it's simple enough to make them, Shanner and his associates can create forms for situations as specific as a single trade show.

THE ADVANTAGE OF YOUR OWN FORMS

Many businesses turn to preprinted standardized forms, but those who have worked with forms software report the computerized approach turns out better. "I had the pre-printed forms, which were very expensive," says Joseph Cywinski, president of Corsan Engineering, Inc., a computer consulting firm in New York City that makes custom programs for Fortune 100 companies. "Furthermore," he says, "using standard forms wasn't very convenient." With a laser printer and *FormSet* software, he now sets up his

STEVE ROSENTHAL is a San Francisco-based writer.



By using an interactive, graphically based program such as Per:FORM, you can quickly create high-quality business forms.

own forms as he needs them.

Even though forms can be created on personal computers with nearly any program that can print out, there are now specialized forms packages that run under most computer operating systems. Some are character based and will work on computers without a graphics display. Others, especially the more recent releases like *Per:FORM* and *FormSet*, take a graphical approach.

GRAPHIC FORMS ON A PC

Delrina's *Per:FORM* is a good example of the graphics approach to processing forms on an MS-DOS machine. Using a mouse, you pick and position fields and graphic ele-

SOFTWARE SOURCES

Fast Forms v1.2 (\$149). Shana Enterprises, (403) 463-3330. System requirements: 512K Macintosh; one drive (hard-disk drive optional); System 4.1 or higher.

FormSet v1.0 (\$95). SoftView, Inc., (805) 388-2626. System requirements: 512K Macintosh; one drive (800K minimum drive highly recommended); System 4.1 or higher. Also for: 768K Apple IIGS (two drives) or 1.25MB Apple IIGS (one drive); 640K IBM PC or PS/2 (hard-disk drive); CGA, EGA, VGA, Hercules; DOS 3.0 or higher; mouse recommended.

FormTool v2.01 (\$95). BLOC Publishing, (305) 445-0903; (800) 888-2562. System requirements: 256K IBM PC or PS/2; two drives (hard-disk drive optional); DOS 2.0 or higher.

Per:FORM v1.0 (\$260). Delrina Technology, Inc., (416) 423-0456. System requirements: 640K IBM PC or PS/2; two 360K drives or one 720K drive (hard-disk drive recommended); CGA, EGA, VGA, Hercules; mouse recommended; DOS 2.1 or higher.

SmartForm Designer v1.0 (\$399). Claris Corporation, (415) 960-1500. System requirements: 1MB Macintosh; two drives (hard-disk drive recommended); System 6.0 or higher.

ments, such as lines and pictures, much the way you would if you were pasting up a form manually. However, on the computer, you get extra tools like combs (sets of evenly spaced parallel lines used to make fill-in-the-blank lines) and prefabricated boxes. Because the program focuses on forms, it treats objects like combs or boxes as units, rather than simply as collections of dots or lines. You can, for example, move, change, or resize any element if the form doesn't work out the first time.

As with most other forms software, *Per:FORM* is also a what-you-see-isn't-all-you-get program. In addition to designing the form's visible characteristics, you can give each fill-in field on your form special instructions for data checking and formatting. You click on a *Per:FORM* field to get a series of choices and, where necessary, click on a choice to see further subchoices and menus. Among the possibilities are alphabetic or numeric formats, allowable values or ranges, and calculated values that automatically fill in sums or totals from prices and quantities filled into other fields.

Furthermore, you can write your own pop-up help window for each field, letting users of the electronic version of the form get more information about what kind of answer you're expecting. *Per:FORM* runs under the *GEM* graphics environment—although most other similar programs are apparently choosing Microsoft *Windows*—which means that it works with most popular graphics video adapters and monitors, mice or other pointing devices, printers, plotters, and Bitstream's *Fontware* fonts. You can import and export basic data to and from non-*GEM* programs such as most word processors (as ASCII text), *dBase*, and *Lotus 1-2-3*. If you want to import logos or other graphics, the *GEM*, *TIFF*, *MacPaint*, and *PC Paintbrush* formats are all accepted. Exporting graphic information, for producing books of forms or for including forms in longer publications, is easiest with other *GEM* packages such as *Ventura Publisher*. If you import a scanned image of a form, say a schedule from the IRS, you can use it as a shadow background while you construct an exact copy as an overlay. *GEM* printing is noticeably slow, but people at Delrina report that they plan to speed up the process.

PREDESIGNED FORMS ON A MAC

If you're a Macintosh user, you've seen all the drawing features you need for the visible portion of forms in such standard packages as

Things To Do, People To See, Places To Go.

Make friends. Buy a cockatoo. Make a million. Fly to Tahiti. Phone home. Shop 'til you drop. Get rich quick. Make a good impression. Get married. Fall in love. Go for broke. Meet "Sagebrush Sally." Improve yourself. Learn to cook. Bargain hunt. Invest wisely. Get smart. Talk back. Name that tune. Lighten up. Pontificate. Talk turkey. Get involved. Dress for success. Name drop.

When you join CompuServe, your computer becomes a time-saving, money-making, life-enhancing tool. Because CompuServe gives you access to a long list of services and resources that can help make your life easier, more profitable, and a whole lot of fun.

With CompuServe you can shop

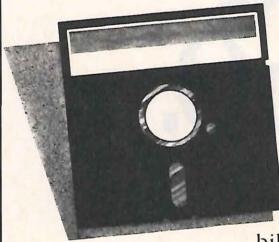
in over 100 stores from the comfort of your favorite easy chair. We have personal investment information to help you feather your nest, and travel services to make it easier to fly south for the winter. We even have over 500,000 other CompuServe members for you to talk to (in your newly acquired spare time).

So become a member of CompuServe. And turn the time you spend with your computer into quality time.

To join CompuServe, see your computer dealer. To order direct or for more information, call 800 848-8199.

CompuServe®

A Wealth of Knowledge.



We have designed a Personal Information Manager with useful billing features.

It is easy to use and custom-made for busy professionals who deal with a variety of people and organizations.

The REGISTER Program combines the features of a contact manager, accounts receivable, and mailing list manager into one compact program.

Regarding Contact Management:

- Extensive data maintained on each entry, plus relationship links to other entries.
- Space for up to 1,000 lines of comments for each entry.
- Each entry can be categorized with multiple attribute flags and selected using Boolean logic.
- Duplicate entry catching.
- Hyperlinks to related entries.
- Global data change capabilities (with a handy "if...then..." feature).
- Sophisticated search capabilities including search of comments.
- Extensive sorting capabilities.
- Many print options including mailing labels and pocket address books.

Regarding Billing:

- Quick and easy recording of Time Slips, Charges and Credits with an Action Code and Remarks.
- Import/Export Lotus 1-2-3 files.
- Options include minimum payments and penalty for overdue accounts.
- Generates Invoices, Client Balance Reports, Fees Received Reports, Overdue Balance Reports, and more.

Available for IBM PC's or compatibles. 512 Kb RAM minimum. EMS supported.

The REGISTER Program



\$79.95



+ \$2.50 s/h

1-800-548-7465

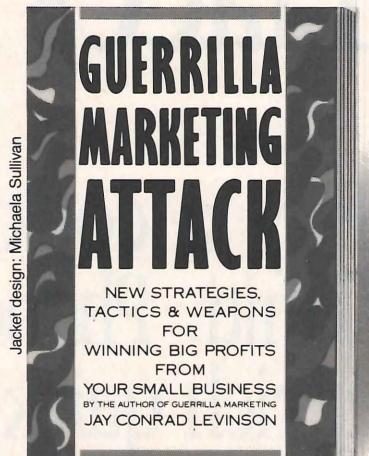
Information: (206) 226-0781

Applied Computing Services

1410 SE Petrovitsky, Suite 203, Renton, WA 98058

"Jay Levinson says it all"

in an easy-to-read, easy-to-understand book that will help you in the competitive wars. Whether in retailing, banking, or the intangibles, GUERRILLA MARKETING ATTACK has the ideas that will allow you to achieve all your goals without spending all your money." —ALLAN CAPLAN, Chairman, Applause Video Corp.



\$7.95, paper (hardcover available)
AT YOUR BOOKSTORE, OR CALL TOLL-FREE
1-800-225-3362. MASTERCARD AND VISA ACCEPTED.

Houghton Mifflin Company

2 Park Street, Boston, Mass. 02108
© Houghton Mifflin Company

Make Money With Your Home Computer

Hundreds of New and Innovative Home Business Computing Ideas and Tips.

Learn how to locate, package and sell information using the Information Broker's tools.

Learn how to use your word processing and DTP software to start more kinds of businesses than you ever dreamed possible.

How To Make Money With Your Home Computer
By Glenn Gilchrist



Learn how your database skills can be your key to Financial Freedom.

Learn how to use the newsletter concept in new and innovative ways.

Learn how ONLINE information searching can form the basis of scores of new business ideas.

STOP SPENDING MONEY ON YOUR HOME COMPUTER AND START USING THIS POWERFUL TOOL AS A MEANS OF MAKING MONEY!

And, it's guaranteed. If you are not completely satisfied, return it within 30 days for a prompt refund.

Send your check or money order for \$14.95 TODAY to:
Information Resources Unlimited
270 Curtin Ave.
West Islip, NY 11795
(NY Residents add 7.5% Sales Tax)

FREE with your order!

"Sourcebooks and Business Systems"

MacDraw or SuperPaint. Many Mac drawing packages even have parallel line tools (though they may be called grates rather than combs) and a variety of boxes. What a Macintosh forms package like *FormSet Business Edition* adds is behind-the-screen intelligence. As an outgrowth of the publisher's popular *MacInTax* tax package that treated income taxes as a series of replica tax forms to be filled out on-screen, *FormSet* links forms and fields electronically so that information you fill out in one spot appears automatically in other spots where it's needed. If, for example, you fill in an order in the Sales Order Form, the Sales Order Summary automatically finds out about it.

In its first incarnation as the *Business Forms Edition* (available for MS-DOS and Apple IIGS computers as well as the Mac), *FormSet* only lets you make minor customization changes to its 65 standard business forms rather than allowing you to design your own from scratch. A more complete package that allows full form design is slated for shipment late this spring. You can, though, add the name of your firm and a logo even to the *Business Forms Edition* pages.

FormSet's categories of forms include accounting, sales, personnel, payables, and general business. You might want to look through the list of forms to make sure what you need is supplied. You'll also want to decide whether the results, hardworking as they might be, aren't a little on the plain side.

THE EQUALIZER

If you look around, you'll find that *Per-Form* and *FormSet* are just two of a number of newer graphics-oriented intelligent forms packages. To name just two, Shana Enterprises offers *Fast Forms* (see review in the June 1988 issue), and Claris Corporation is now shipping their long-promised *Smart-Form Designer* (look for a review in an upcoming issue). In addition, if you don't need pretty forms, don't have a graphics display, or just want a quick way to generate a typewriter-like form, there are still useful character-based programs that rely on row-and-column positioning, such as BLOC Publishing's well-known *FormTool*.

Before forms software was readily available, turning out good-looking business forms that met the requirements of your own operation and those of your customers, suppliers, and government agencies was a major headache for independent professionals and small businesses. The choice was usually to use an expensive standard form, to have even costlier custom forms produced, or to go with a quick handmade product that too often looked as if it were pasted together on the kitchen table. Now, with a personal computer and a modest investment in a forms-design package, a small firm can present the same capable face as a large company. ■

At last! DOME...

America's favorite bookkeeping system runs on your computer.

Now the popular DOME bookkeeping system is easier and quicker to use than ever, through the power of your IBM, Apple, Commodore or Tandy computer.

It works just like the familiar DOME record book used by millions of people for over forty years. Just enter receipts and expenses on each "page" on the screen. You can even turn the pages back to look at prior weeks or months. And you can erase! No more smudges, no more cross-outs. Just clear, error-free entries for all your transactions.

The entire DOME book on a single diskette!

In a simple format DOME includes a complete system for business and tax recordkeeping: income, expenses, payroll and financial reports. Plus, exclusive "pop-up" accessories appear on your screen with a single keystroke: a calculator, notepad, list of accounts and even a perpetual calendar...everything you need to maintain a set of books and business records for a full year.

And not only does DOME keep your records but it will help you analyze them with powerful reporting capabilities.

Reports you always wished you had.

Look up or list every expense for the past year, month or day. You can do it by payee or account. Analyze income by product or service. If you have employees, DOME will help when 941 and W-2 forms are due. And print weekly or monthly financial statements showing profit or loss.

Sets up in less than 10 minutes!

Because DOME is based on the familiar DOME book, you already know how to use it! Save time setting up, save time learning and save time each week—because DOME does all the addition for you with complete accuracy. All you do is enter your income and expenses, and let DOME do the rest!

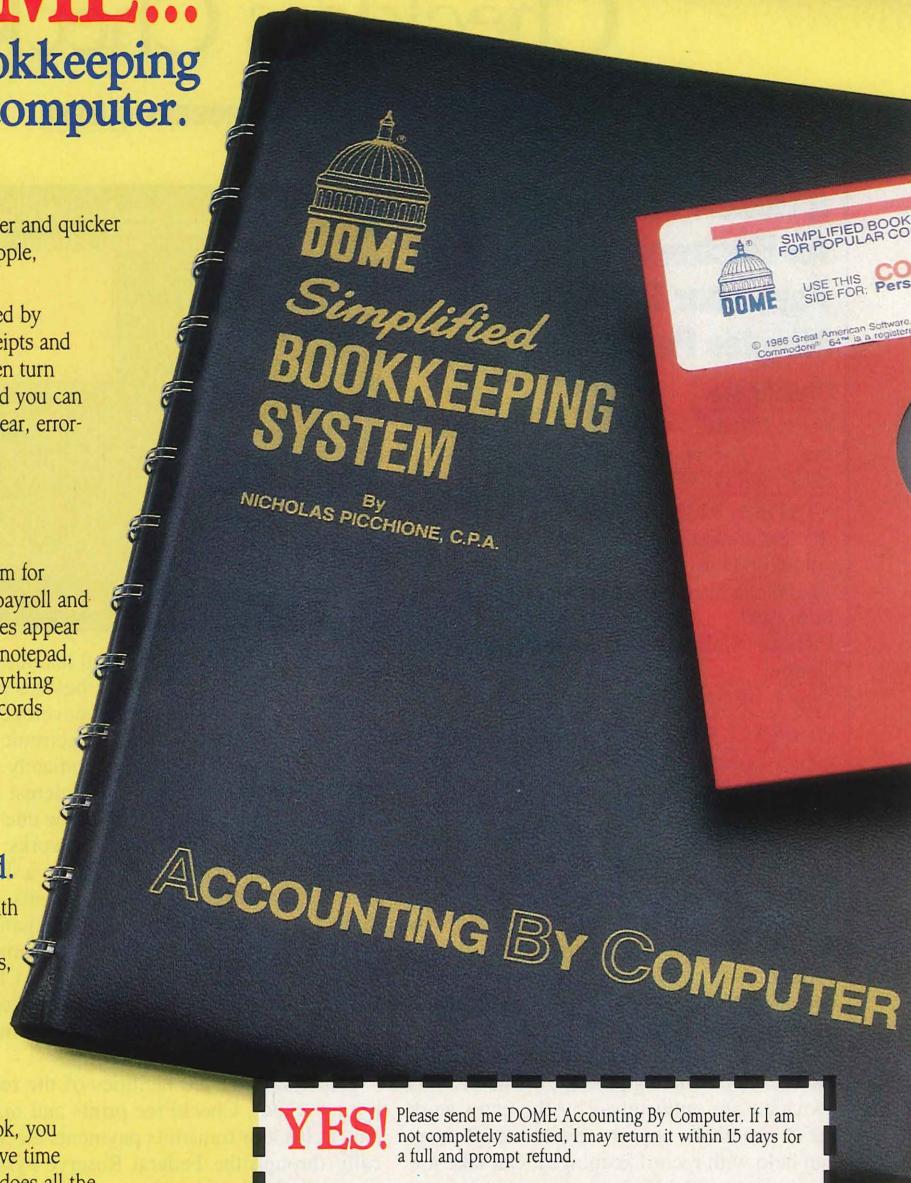
Try it yourself for 15 days without obligation!

System Req: IBM PC, XT, AT or compatibles, 256k; Apple IIe, IIc; Commodore 64, 128; Tandy 1000, 1200, 3000, 256k. Printer optional.

\$59⁹⁵

Complete and mail the coupon or
CALL TOLL FREE
1-800-528-5015
and charge it to your credit card!

CIRCLE READER SERVICE 47



YES!

Please send me DOME Accounting By Computer. If I am not completely satisfied, I may return it within 15 days for a full and prompt refund.

IBM \$59.95 Apple \$59.95 Commodore \$59.95 Tandy \$59.95

Payment enclosed Charge my Visa MC
(plus \$3.00 shipping) (plus \$3.00 shipping)

Card # _____ Expires _____

Signature _____ Phone _____

Name _____ Title _____

Company _____

Address _____

City/State/Zip _____ 1100

Great American Software, Inc.

9 Columbia Dr. • PO Box 910, Amherst, NH 03031 • (603) 889-5400

IBM, Apple, Commodore, and Tandy are registered trademarks of International Business Machines, Inc., Apple Computer, Inc., Commodore Business Machines, Inc., and Tandy Radio Shack Computers, respectively.
DOME® Publishing, Warwick, RI

Checkless Checkwriting

BY ROBERT CULLEN

A Review of CheckFree, An Electronic Service That Pays Your Bills in Minutes Per Month.

CheckFree

PUBLISHER: CheckFree Technologies, Inc., P.O. Box 897, Columbus, OH 43216; (614) 898-6000

SYSTEM REQUIREMENTS: 256K IBM PC and compatibles equipped with a Hayes-compatible modem, and two disk drives. Macintosh version scheduled for release mid-1989

PRICE: \$30, plus \$9 monthly minimum charges

COPY PROTECTED: No

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★ ★ ★

SUPPORT: ★ ★

GRAPHICS QUALITY: ★ ★ ★

EASE OF USE: ★ ★ ★

I want to pay bills, fashion budgets, prepare tax returns, and plan my future with my personal computer. Yet, after five years of reviewing PC software, I have yet to find a check-writing, tax-preparation, or financial-planning package that fills the bill.

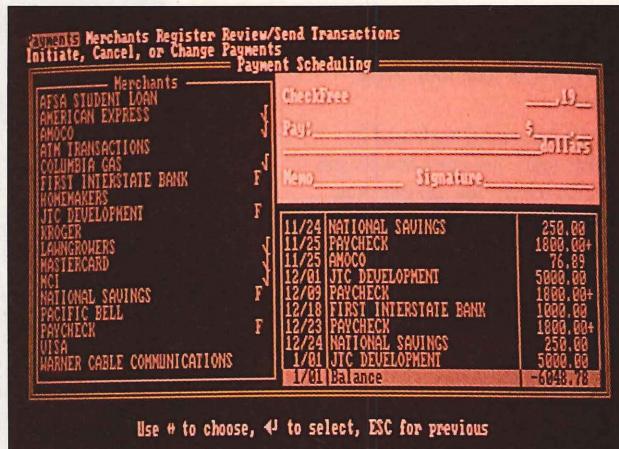
Of these programs, the least appealing to me are check-writing packages. The benefits provided are outweighed by the extra work these programs require. Even though they can help with record keeping, it can take too much time and effort to maintain the on-screen check register, load track-fed check forms into a printer, line up the text to print the checks, and sign and mail the payment.

However, I remained hopeful, and when I heard of a new check-writing service that eliminates the hair-pulling frustration of writing and printing checks, I was intrigued.

HOW IT WORKS

CheckFree is a service that draws from available electronic banking technologies to make computerized bill paying easier. You can use CheckFree on your modem-equipped 256K IBM PC or compatible without chang-

ROBERT CULLEN is computer editor of Personal Investor and Financial Advisor magazines and president of Hightech Editorial, a home-based company specializing in computer and financial articles for national publications.



Use # to choose, □ to select, ESC for previous

To write a CheckFree check, select a name from your list of merchants (left) and enter the payment information on the on-screen check (top right). Your checkbook register (bottom right) is automatically updated.

ing from your present financial institution or having to print checks. And, besides eliminating the need for addressing envelopes and licking stamps, *CheckFree's* electronic payments are received almost immediately. This allows you to maximize your interest earnings by waiting until just before the due dates to pay your bills. Here's how it works.

With the program, you create a list of merchants to receive your payments. You then "write" checks to these merchants on the screen. Next, you instruct your computer to dial the CheckFree on-line service. CheckFree automatically establishes a connection and stores all of your bill-paying information in its central computer system.

Depending on the facilities of the receiving merchant, CheckFree prints and mails a paper check or transmits payments electronically through the Federal Reserve system's Automated Clearing House, which is connected to all banking institutions.

Your computer check register is automated to track your balance. Every time you write a check, *CheckFree* enters the date, payee, and amount into the register and adjusts the balance. Similar actions take place when you enter withdrawal and deposit data, although *CheckFree* does not handle those transactions directly.

Regular monthly payments, such as mortgages or auto loans, can be paid automatically. You specify the merchant, payment, and date for the transfer, and *CheckFree* processes the payment every month—or at whatever interval you indicate—until directed otherwise. *CheckFree* records these transactions automatically to keep your computerized check register up to date. For anyone who has a number of fixed monthly payments, this feature saves a lot of time.

All transactions can be coded by category, which enables you to easily identify what your income sources are, which items are tax deductible, and how much you spend on every budget item.

For *CheckFree's* service, you pay \$9 per month to process 20 checks. You pay an additional \$3 for each increment of 10 checks. Thus, processing 21 to 30 checks would cost \$12 per month, 31 to 40 checks \$15 per month, and so on. You should also check to see if your bank will charge you to process a *CheckFree* transaction.

HOW IT RATES

The program is easy to comprehend except that there are a few minor discrepancies between the manual and the software tested. However, attractive menu screens and easy-to-follow documentation make learning and using this program a smooth, simple process.

I was uneasy the first time I instructed *CheckFree* to pay my bills. Would it pay as instructed, or would I receive overdue notices? *CheckFree* did not fail me: When my banking statement arrived, the first thing to catch my eye was a *CheckFree* check. The same size as my regular paper checks and printed on light-green paper, this laser-printed paper check was reassurance that someone else could be trusted to pay my bills.

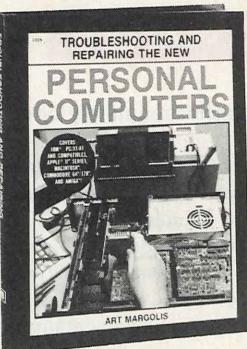
The remaining payments I had ordered were represented only as entries on my statement. According to a *CheckFree* spokesman, when a merchant isn't set up to receive electronic payment, then a paper check is printed and sent. Otherwise, payments are sent electronically.

Accustomed to having canceled paper checks on hand to resolve payment disputes and document tax-deductions, I found this

SELECT 5 BOOKS

for only \$3.95

(values to \$186.75)



2809 \$26.95
Counts as 2



1990P \$16.95



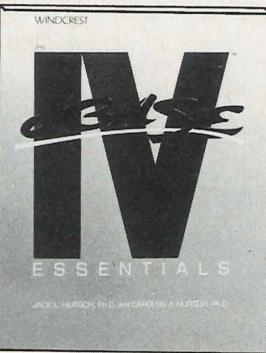
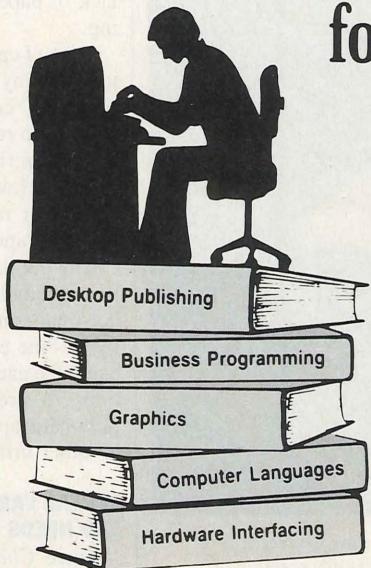
2862 \$19.95



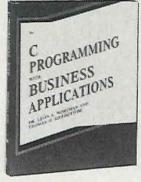
3026 \$22.95



9785 \$86.95



3116 \$27.95
Counts as 2



2857 \$25.95



2856P \$18.95



9083 \$29.95
Counts as 2



3146P \$17.95



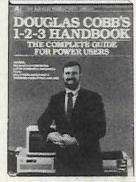
2929P \$15.95



2978P \$17.95

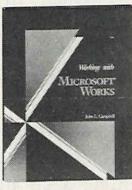


9826P \$16.95

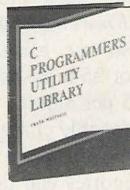


9779P \$22.95

When it's new and important in business or personal computing,
The Computer Book Club® has the information you need . . .
at savings of up to 50% off publishers' prices!



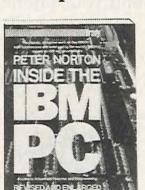
3119P \$21.95



2855P \$16.95



3047 \$34.95
Counts as 2



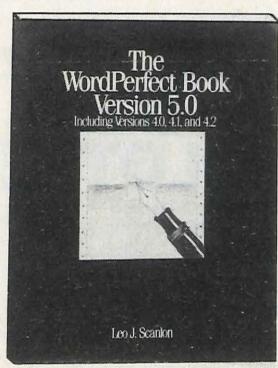
9762P \$21.95



2748P \$14.95



3109 \$28.95
Counts as 2



3127P \$16.95



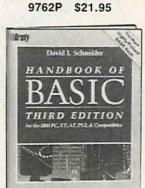
2841P \$15.95



2859P \$20.95



3031P \$16.95



9200P \$24.95
Counts as 2



2997 \$25.95



2963P \$14.95



2745 \$24.95



1752 \$18.95



2654 \$19.95



2948 \$27.95
Counts as 2



3035P \$14.95



1540P \$17.95



2793P \$16.95



2807P \$14.95



The Computer Book Club®

Membership Benefits • Big Savings. In addition to this introductory offer, you keep saving substantially with members' prices of up to 50% off the publishers' prices. • **Bonus Books.** Starting immediately, you will be eligible for our Bonus Book Plan, with savings of up to 80% off publishers' prices. • **Club News Bulletins.** 14 times per year you will receive the Book Club News, describing all the current selections—mains, alternates, extras—plus bonus offers and special sales, with scores of titles to choose from. • **Automatic Order.** If you want the Main Selection, do nothing and it will be sent to you automatically. If you prefer another selection, or no book at all, simply indicate your choice on the reply form provided. As a member, you agree to purchase at least 3 books within the next 12 months and may resign at any time thereafter. • **Ironclad No-Risk Guarantee.** If not satisfied with your books, return them within 10 days without obligation! • **Exceptional Quality.** All books are quality publishers' editions especially selected by our Editorial Board.

FAMC589

If card is missing, use this address to join: © 1989 THE COMPUTER BOOK CLUB®
Blue Ridge Summit, PA 17294-0820

CIRCLE READER SERVICE 63



3030P \$17.95



2968P \$19.95



2756P \$12.95



2913P \$14.95

Only the telephone company thinks
2 lines are better than 1
... that's how they make their money.



Made in the USA

Here's how to save some of yours!

Running a business today requires more than just a telephone. The fax has become indispensable. But adding one used to mean adding a second phone line. Not anymore!

The Extel® Line One™ Fax/Voice Switch allows a telephone and a fax (or modem) to share a single line. And that can save you up to \$800 a year in multiple line and installation charges.

This innovative machine automatically

directs calls to either your fax (or modem) or to your phone. Store a personal greeting or instructions in memory. Connect your answering machine for even greater unattended capabilities.

So add the Line One™ Fax/Voice Switch and cut your phone lines—and your phone bill—in half! Call us today. (312) 205-3314.

 Extel Corporation
3005 MacArthur Blvd., Northbrook, IL 60062

BEAT THE LOTTERY

Gail Howard's latest book —LOTTO: How to Wheel A Fortune—gives you the most complete information available on how to improve your odds of...

WINNING THE LOTTERY

ATLEAST 13 MAJOR LOTTO PRIZES (INCLUDING 10 FIRST PRIZE JACKPOTS) TOTALING \$30.8 MILLION WERE WON USING GAIL'S SYSTEMS.

Only this book has over 100 easy to use Balanced Wheeling Systems™ with:

- Valid Minimum Win Guarantees
- EXACT Guaranteed ODDS IMPROVEMENT up to 667%
- Multiple wins possible with each system (ONLY \$14.95+\$2 s/h)

FOR YOUR COMPUTER

GAIL HOWARD'S SMART LUCK COMPUTER WHEEL™

Gail Howard's entire book of Balanced Wheeling Systems™ on diskettes. No other lottery computer system offers so much! System also checks for wins. 5 1/4"-\$29.95+\$2 s/h; 3 1/2" only \$32.95+\$2 s/h.

GAIL HOWARD'S SMART LUCK COMPUTER ADVANTAGE™

Gail Howard's famous Lottery Advantage charts to pick the best numbers to play in your favorite state or International Lotto game (\$7 for each additional Lotto game). Please specify which Lotto game(s). 5 1/4" \$39.95+\$2 s/h; 3 1/2" \$40.95+\$2 s/h.

DEMO DISK AVAILABLE

For your evaluation of Gail Howard's SMART LUCK COMPUTER ADVANTAGE™ \$5.00 for 5 1/4" format. \$6.00 for 3 1/2" format. Check or money order only for demo.



SMART LUCK PUBLISHERS

P.O. Box 1519 - Dept. FC-12 - White Plains, NY 10602

for information or technical support **312/934-3300**
Visa/Mastercard orders (800) 876/G-A-I-L (4245)
only - call toll free



100,000 + FAX Numbers — of — U.S. Businesses including Names & Addresses

- Quick reference
- Maximize FAX usefulness
- New advertising medium

Only **\$49.95** Postage Paid
Order Now!

Entrepreneurs' Library HOC-5
Box 17509, Fountain Hills, Az. 85269

Please rush me a copy of the new Fax Directory. Enclosed is check or money order for \$49.95.

Name _____

Company _____

Address _____

City _____

State _____ Zip _____

FINANCE

lack of paper documentation mildly disturbing.

When I called CheckFree customer service to voice my concern, I was assured CheckFree will contact a merchant directly and attempt to resolve the situation at no charge to a subscriber in the event of a payment dispute. However, a \$2 fee is charged when a subscriber requests paper documentation of the remittance.

The publishers of *CheckFree* have broken new ground with this product, combining personal computer convenience with powerful on-line computer systems. Additionally, using the nation's electronic banking connections to process consumer payments is a pragmatic approach that will surely be copied by other firms.

APPEAL VARIES DEPENDING ON HABITS AND NEEDS

Since *CheckFree* eliminates check-printing hassles, will I continue to use this program to manage my personal finances?

Looking back through my bank statements, I found I write about 25 checks on my business account each month. Thus, my monthly *CheckFree* charge would be \$12. Of course, *CheckFree* eliminates postage costs—\$6.25 for 25 bills—so my actual cost would be \$5.75 per month.

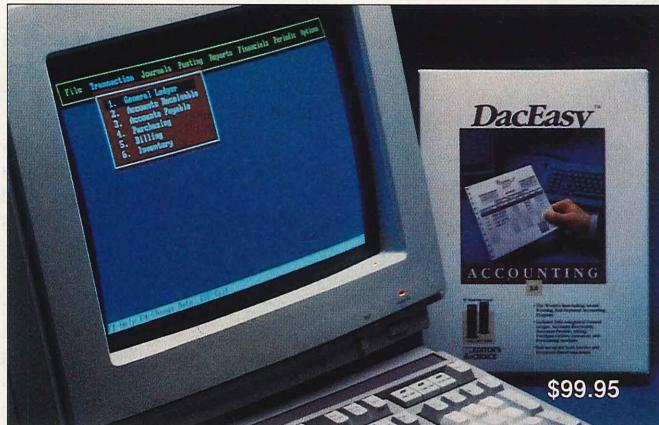
This is a reasonable charge. Using *CheckFree* is easy and the way transactions are coded into categories can facilitate accurate budgeting. However, I write five to seven checks per month outside my home office, for such things as office supplies and equipment. Since my computer does not fit into my pocket, I still have to keep my paper checkbook register current as well as the *CheckFree* computer register.

Combine this double bookkeeping requirement with the annual cost of *CheckFree*, and the service loses its appeal for me. But for anyone who gets writer's cramp from filling out checks for monthly bills, the program can save a lot of time and energy. And for those individuals who keep their checkbooks in one place, the package works well.

My dream is a comprehensive service that handles all of my personal and small-business financial matters. Imagine a system where you enter your personal data only once to have hassle-free checkwriting, easy bank-statement reconciliation (a California bank, First Interstate, now sends monthly statements on floppy disks to customers subscribing to its automated checking system), tax preparation aided by intelligent expert-system software, and long-range financial planning and investment management.

I would willingly pay a monthly fee for a service that would give me single-entry data input and comprehensive personal financial management. *CheckFree* is certainly a step in that direction. ■

Solutions For Your Growing Business Come with One Name. . . DacEasy™!



DacEasy Accounting™

More businesses worldwide choose award-winning DacEasy more than any other accounting for solutions that are simple and accurate, yet power-packed! The mark of DacEasy's excellence comes with being the only accounting software to win all magazine readers' choice awards in the past three years. With Version 3.0, fast installation means answering five quick questions and your business is operating in 10 minutes. A new user interface provides transaction-oriented pull-down menus for fast, accurate processing. Choose predefined Chart of Accounts for your service or inventory-based business, or modify. Best-selling Accounting contains seven modules (General Ledger, Accounts Payable, Accounts Receivable, Inventory, Purchase Order, Billing and Forecasting) in one fully integrated package.



Lucid 3-D™

All new, by *DacEasy*, version 2.0, the most incredible spreadsheet value. Simple to use (even for beginners!), yet remarkable for its three dimensional capacity and beautiful graphics. Transport accounting data into Lucid for budgets and proposals without ever rekeying. Winner of the coveted *PC Magazine's* Technical Excellence Award (1987) and *Home Office Computing* Editors' Pick (1988).

See your local Dealer or call:

1-800-877-8088

(In Canada, call 519-747-9633)

Also ask for your **FREE** People's Choice catalog on the entire line of DacEasy software and hardware.



DacEasy Insilco

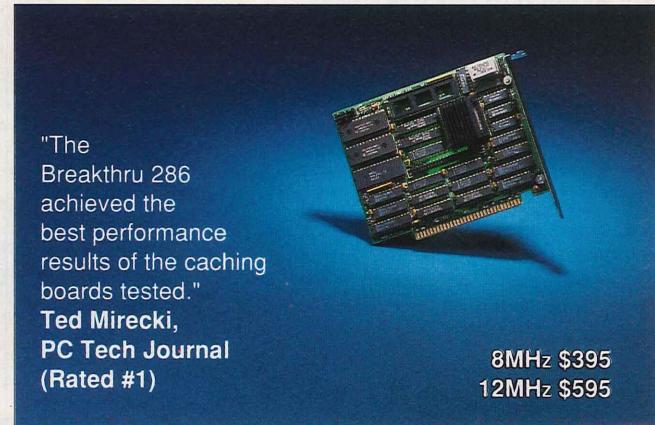
17950 Preston Road • Suite 800 • Dallas, Tx 75252
214-248-0205 Fax 214-250-3752

See us at Spring Comdex
in Chicago at Booth #8222.

• Unconditional 30 Day Money Back Guarantee on all products bought directly from Dac Software (less shipping charges) Minimum Hardware Requirements: IBM PC or 100% compatibles. Other specifications may vary by product. • IBM, MS-DOS, Lotus, Intel, Microsoft, Rolodex and are registered trademarks of their respective corporations. • DacEasy, Lucid 3-D, Breakthru 286 and Rolodex Live! are trademarks of Dac Software, Inc. Copyright © 1989, by Dac Software, Inc. All rights reserved.

Ask for operator #913

CIRCLE READER SERVICE 41



Breakthru 286™

New by DacEasy is the Breakthru 286 speedup board, the most advanced turbo board for your business dollar. Available in two clock speeds (8MHz and 12MHz), and providing the most cost-effective way to convert your PC (most clones and Compaq portables) so that it's faster than an AT without the expense. Simple 1-2-3 installation of a half card and there's no software required! Software compatibility is universal so all system RAM, hardware, and peripheral cards can be used without modification. Breakthru works with LAN and mainframe communication products and conforms to the Lotus/Intel/Microsoft Expanded Memory Specification (EMS). And included with your board, is DacEasy Lightning, a disk-caching program (*PC Magazine's* 1986 Editor's Best) that retails at \$69.95, yours absolutely **FREE**.

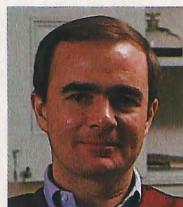


Rolodex Live!™

DacEasy's newest way to save time and keep track of people, places and events at the touch of a key. For any home or office, there's never been an easier, more organized way to create, update and print Rolodex cards, custom labels and envelopes. Instant lookup (pops up over any other software) for tip of the tongue information. Bring your Rolodex cards to life!

Put Your Computer to Work While You're Away

BY ALFRED GLOSSBRENNER



I have a friend, a private investigator, who used to work from his home in Alaska. (He's since moved to Arizona.) He frequently had to make trips to the lower 48, and when he did, he took his portable computer with him. After dinner at my house in Pennsylvania, he would invariably say, "Well, time to check in at the office." We'd take the kitchen phone off the wall, and he'd plug his portable computer into the telephone line. In seconds, he was logged on to his computer system in Anchorage, collecting messages and queries left by his wife and business associates, uploading notes he had made during the day, and issuing instructions on how to handle various situations.

Thanks to his private bulletin-board system, he was able to run his business and stay on top of things even though he would typically be away for two or three weeks at a time. And he was (and is) not a techno-freak, hacker, or high-tech superstar. In fact, at the time he had owned a computer for less than a year.

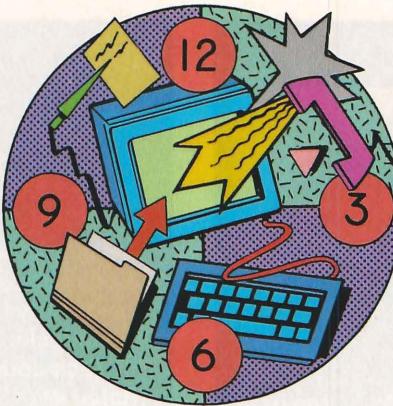
NOT FOR HACKERS ONLY

Most people who have heard of bulletin-board systems (BBSs) associate them with hobbyists, hackers, and others who live and breathe computers. And most of the nation's 14,000 bulletin-board systems are owned and operated by men (mostly) and women who fit that description.

Yet a bulletin-board system—a *private* bulletin-board system—can be a powerful business tool. The right communications software can turn your home-office computer into a round-the-clock message center, a we-never-close library, and an extension of yourself, wherever you happen to be.

A BBS lets you send and receive messages (either private or public), and upload, download, and view files. And every BBS can be set up so that only you, or those select few you authorize with a password, can have access to it. You'll need a computer, a mo-

ALFRED GLOSSBRENNER is the author of Alfred Glossbrenner's Master Guide to Free Software for IBMs and Compatible Computers, The Complete Handbook of Personal Computer Communications, and many other books. He can be reached on CompuServe (ID: 70065,745) and MCI Mail (ID: AGLOSSBRENNER).



The right communications software can turn your computer into a round-the-clock message center, a we-never-close library, wherever you happen to be.

dem, and communications software at your base station. And you'll need access to a modem-equipped computer and phone link at your remote location.

Turn your base-station computer on, load the software, and set your modem to auto-answer before you leave home. You'll then be able to call (by modem) your home or office computer from any remote location. Your base-station modem will automatically answer the phone, and the software will prompt you for your name and password. Once you've given that information, you'll be logged onto your base system. From a swank restaurant or posh hotel a thousand miles away, you can download a file you need, check for messages another caller might have left, or upload a file for someone else to view.

Home-business operators can set up a BBS to provide an information source for clients (you can list your rates or news in the field) and an easy way to interact with co-workers. If such a system becomes heavily used, you'll probably want to dedicate a separate phone line and computer to it.

GETTING STARTED

There are a number of ways to get started. The first thing to do is check your communica-

tions-program manual to see if your program already has a built-in remote-host capability. Both *ProComm* for MS-DOS computers and *Red Ryder* for the Macintosh, for example, include host modes that may give you everything you need. (The latest versions of both programs will be reviewed next month.) Host mode operates like BBS software in many ways but doesn't let you set as many access levels, set separate message sections, or easily leave private messages.

If your communications program doesn't have a host mode, or you want a more sophisticated system, consider a public-domain or shareware BBS package. For MS-DOS users, I recommend *Minihost*, a program specifically designed for the kinds of applications described here. My Mac-using friends tell me that a package with the unlikely name of *World War IV* is their program of choice. (See "Low-Cost BBS Software" for information on obtaining these programs.)

Don't wait until the day your flight is leaving to implement your system. Get it up and running, then use a friend's computer to call in and test it out. When everything is working properly, make a checklist of the steps you should follow to activate the system. It would be a shame to have a system sitting at home unused because you forgot to turn on your modem or put it into auto-answer mode as you went out the door.

Clearly, BBSs aren't just for hackers anymore. If you have a portable or laptop, having access to your base-station computer while you're away can be a real plus. Once you get your private bulletin board up and running, you'll wonder why you ever left home without turning one on. ■

LOW-COST BBS SOFTWARE

For MS-DOS users, *Minihost* is my choice for BBS software. I will be happy to send to you a copy of the program for \$5 (5.25-inch disk) or \$6 (3.5-inch disk). I am not selling this public-domain software, but charging for the disk, copying, shipping, and handling. U.S. funds on a U.S. bank only, please. (Alfred Glossbrenner, FireCrystal Communications, 699 River Road, Yardley, PA 19067.)

Macintosh users should consider the *World War IV* BBS package. The program is available from Educorp for \$6.99, plus \$4 for shipping and handling. (Educorp Computer Services, 531 Stevens Avenue, Solana Beach, CA 92075; [800] 843-9497; [619] 259-0255.)



THERE'S A FAX ON YOUR DESK.

ADD THE COMPLETE FAX/9600 TO YOUR PC FOR JUST \$699. The Complete FAX/9600™ lets you communicate with any Group III fax machine in the world. Even with other computers equipped with a fax board. You can send text, graphics, hard copy, just about anything you use in your business.

EASY TO USE. With our Hot Key, you can send directly from your word processing program with just a few quick keystrokes.

OPERATES IN THE BACKGROUND. The Complete FAX/9600 sends and receives faxes transparently, without interrupting the program you're working on.

When a fax comes in, you can view it immediately, save it, or print it out while you continue to work.

SEND TO ANYONE, ANYTIME. There's a directory for frequently dialed numbers you can use to create different distribution groups. With one command, you can send a fax to each destination along with an automatically generated cover sheet.

You can store faxes and schedule them for transmission later, when phone rates are

lower. To make sure a busy phone line doesn't get in the way of delivery, automatic redial keeps trying until your fax gets through.

COMPLETE SCANNER SUPPORT. The Complete FAX/9600 supports all popular scanners, including Canon®, DEST,™ Microtek and Hewlett-Packard. It comes on one easy-to-install board that takes up a single slot. It even comes with a 2-year warranty.

WHAT YOU NEED. Just an IBM® PC or compatible with a hard disk and graphics card. With that and \$699, you're in business.

There's also an optional on-board 2400 bps Hayes®-compatible data modem available.

And if you want a 4800 bps fax, ask for The Complete FAX.™ It comes with a long list of features for just \$399.

For more information about The Complete FAX/9600 or The Complete FAX and the name of the dealer nearest you, call today.

1-800-634-5558.



TheComplete PC

Entrepreneurs: How to Streamline Your Business

BY PAUL & SARAH EDWARDS



Boyd Willat, a friend of ours, developed the popular Day Runner organizer/calendar books. He and his wife began their business in their home on Harper Avenue in Los Angeles and originally called the company Harper House. Today, Day Runner, Inc. is a thriving international company with corporate offices and manufacturing facilities.

In discussing what he's learned about succeeding in business, Boyd Willat makes an interesting distinction between classic entrepreneurs and many people who are starting home businesses today. He believes most of today's new entrepreneurs are what Michael Maccoby called craftsmen in his 1976 book *The Gamesman*. We agree.

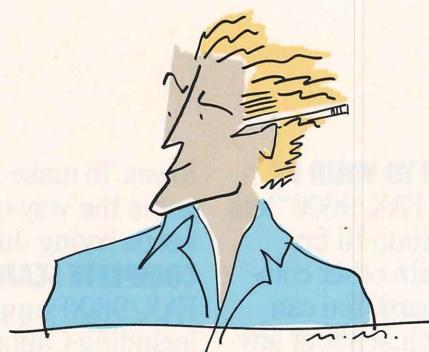
Classic entrepreneurs probably had a lemonade stand and paper route in childhood. (Willat, by the way, doesn't use the term *classic*, but prefers *professional* or *experienced*.) By college, they likely had one or more sideline businesses to pay expenses or buy sports cars. To classic entrepreneurs, business is a game; making money is the goal. They eagerly move from venture to venture and love doing business.

We find that most people starting businesses today do not fit that profile. Instead, they represent a new breed of entrepreneurs—technicians, artists, professionals—who start a business to better control their lives, or to work on their own terms. For these new entrepreneurs, being in business is more a means to an end than an end in itself. Many would continue working even if they won a sweepstakes. We can't imagine retiring from our work in favor of travel or golfing or anything else.

Love of Work, Not Business. The new entrepreneur is better prepared for working *in* business than *on* it or *at* it. Some aspects of business that the classic entrepreneur finds exciting and enjoyable can be disagreeable and even intimidating to today's new entre-

preneurs. Among these are sales, marketing, financial planning, and negotiating.

A good example is an excellent management trainer we know. He became frustrated spending more than 50 percent of his time dealing with administrative trivia and office politics, so he left his job to establish a training and consulting firm from his home. One year later, he was despondent. He found himself spending more than 50 percent of his time finding and negotiating jobs. And he still had to handle the "administrivia."



Some aspects of business, such as sales, marketing, and negotiating, can be disagreeable to today's entrepreneurs.

Like most new entrepreneurs, he needed ways to streamline the business side of freelancing so he could profitably pursue his work. Fortunately, as more people venture out on their own, they are developing this streamlined approach to business. Here are several suggestions.

1. Focus on repeat business. Once you have a client or customer, scout out ways to make yourself invaluable so the customer will continue with or expand your services. If you do word processing, can you also do layout for the same customer? If you maintain a mailing list, can you also do mailings and collate responses? Can you add value to your service that others don't provide? The best time for doing this is while you're still working with a

client, not when a project is over and you're out of sight.

2. Use existing customers or clients to refer you to leads for new business. Your current customers are your best ambassadors. Ask for their referrals and offer an incentive, such as a discount price on the next job. Get letters endorsing your work; some people even get endorsements on audio tape.

3. Computerize your correspondence, billing, and invoicing. Develop templates for your most common business forms like sales letters, thank-you notes, and invoices, so you can just punch in the details for each client. Set up empty files on your word processor called Letter, Envelope, and Thank You, with the proper formatting.

4. Get payment up front, or at least at the time of delivery. Prepayment prevents costly billing expenses and collection problems. It helps your morale as well as your cash flow. In professions where prepayment isn't common practice, set up a schedule of payments. The more you insist on this, the more professional you'll appear.

5. Offer free demonstrations to market your work. Especially if your business is computer based, market yourself by showing off your work at trade shows, civic or professional groups, local retailers, and so on. For example, it's easy to demonstrate your skills at desktop publishing or database management. When possible, arrange to have key prospects observe you.

Whenever you despair about the business side of your business, remember that the amount of time you need to spend getting business will decrease from nearly all your time when you start the business to as low as 10 to 20 percent within three to five years.

Area-Code Locator. Do you ever get a telephone message from an area code you don't recognize? To look it up, you have to know where to look on the area-code map in the phone book. We got tired of not knowing where we were calling. We have software for finding the location but don't want to take the time to load it. Some tasks are still better done by hand, so we developed a handy one-page—front and back—Area-Code Locator.

At a glance, we find out where and what time zone we're returning a call to. If you would find our Area-Code Locator helpful, send a stamped, self-addressed #10 envelope to: Paul and Sarah Edwards, P. O. Box 5172, Santa Monica, CA 90405. ■

PAUL & SARAH EDWARDS are the authors of *Working from Home: Everything You Need to Know to Live and Work Under One Roof* (Jeremy P. Tarcher, 1987). They cohost the "Home-Office Show" on Business Radio Network and operate the Working From Home Forum on CompuServe (GO WORK).

These programs have one thing in common:

DeskMate!

The proven, user-friendly interface

Good news!

Now there's a breakthrough software system designed to make your PC-

compatible computer easier to use than ever before. It's the DeskMate® Graphical User Interface, and leading software publishers are adopting it to give their programs a friendlier look and feel.

How does it work?

Very well, thank you. The proven format of the DeskMate Interface uses pop-up dialogue boxes and handy pull-down menus to select operations. Move around freely and make selections with the keyboard, or use a mouse for "point and click" convenience.

Look at what's available.

When you learn to use one program that uses DeskMate standards, you're well on your way to knowing how to use a library of software. Choose from titles in everything from word processing and accounting to desktop publishing and home education.

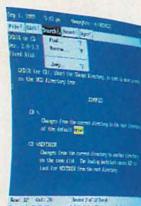
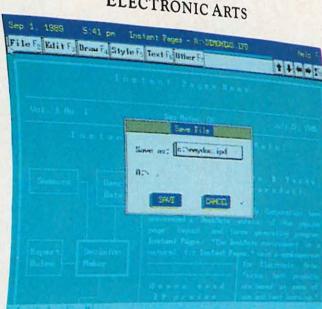
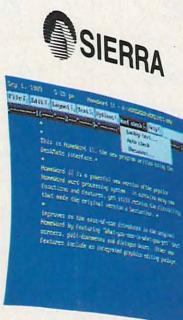
Make it easy on yourself.

Join the software revolution that's setting new standards in user friendliness. Look for programs with the DeskMate logo!

**Also available:
the software
package that
started it all!**



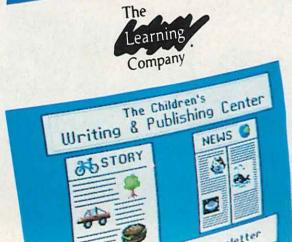
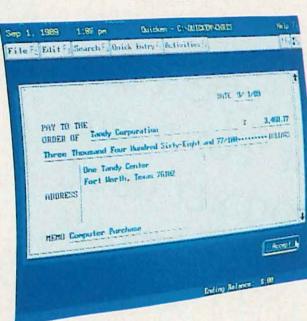
Discover the ease of use of the DeskMate User Interface with DeskMate Applications Software, a versatile collection of ten great programs. Available at leading software dealers nationwide.



Intuit

EPYX

First Byte



DeskMate™
User Interface by Tandy

DeskMate is a registered trademark of Tandy Corporation. Company logos used with permission.



ZENITH		BEST BUY SPARK	
N	Y	N	Y
	640K		640K
N	Y	Y	Y
SPEED	4.77/9.54MHz	4.77/9.54MHz	4.77/8MHz
HARD DRIVE	20Meg	20Meg	20Meg
ACCESS TIME**	97.98msec.	96.37msec.	101.67msec.
DISK DRIVE	720K	720K	720K
DISPLAY	LCD BACKLIT	LCD BACKLIT	LCD BACKLIT
DOS	3.2	3.3	3.21
WEIGHT	14.3 Lbs.	UNDER 11 Lbs.	10.8 Lbs.
SIZE	Too Bulky! 612 CU. IN.	439 CU. IN.	457 CU. IN.
PRICE	\$3,695	\$3,699	\$3,599
MODEL	NEC MULTISPEED HD	TOSHIBA T1200 HB	ZENITH SUPERSPORT
TOTAL SCORE	4.3	4.45	4.74
			8.98

* Uses new "Silent Drive" technology

** PC Magazine Laboratory Benchmark Series—
Hard Disk Sector Random Access Test

OVERPRICED

portability, and
a built-in handle.
Other models
are also available

CALL!

History does repeat itself.
Spark proves it. For more
information contact us at
One Meca Way, Norcross,
GA 30093 (404) 564-5555.

DATAVUE™
An Intelligent Systems Company

Million-Dollar Home Businesses

Success Secrets: Entrepreneurs Cite Hard Work, Perseverance, Timing, and Follow-Through

BY LYNIE ARDEN



Schier operates his business from his home. Now, instead of business travel, "hitting the road," means taking a spin in the 1927 roadster he rebuilt.

When people fantasize about striking it rich, they often try to cook up a scheme, some trick no one else has thought of. But get-rich-quick schemes are more often a road to failure than success. So we rounded up and interviewed several owners of million-dollar home businesses to see if we could uncover any formulas or secrets to making a lot of money. But the only things these people have in common are a positive attitude and a propensity for hard work. Each built his or her business alone—with no inheritance, no lottery winnings, no rich uncles to help when the going got rough.

Although hard work underpins all of these

success stories, it alone does not build a strong business. Surprisingly, none of these owners could identify the point when their businesses took off. Yet there are turning points in the stories that follow, and they are usually keyed to one of the following elements:

Timing. There's a right time for everything. Selling the right product or providing the right service at the right time is the name of the game. To do so, you must understand the marketplace. You've also got to know when to expand and when to hold back.

Never Saying No. Especially when starting out, a willingness to take on jobs can pay off. The more people who know about your work, the quicker the word will spread. There are limits, of course, to saying yes—be careful not to overextend yourself.

Perseverance. Success is a cumulative process. If you believe in yourself and in your business, you are able to learn from early mistakes and go on to the next job. When you're running at a loss, work to build a reputation with your distributors, suppliers, or clients.

Follow-Through. Luck does play a part in success, but successful people take advantage of their lucky breaks. If you get free publicity, parlay it into jobs, or more publicity. If you land a big job, turn the client into a regular source of business. Expand by building on your base.

Focus. Successful people focus on their goals, which helps them overcome mistakes and failures along the way. In business terms, they focus on their product, market segment, or professional skill. Pick a niche and make it your own.

Contributing editor LYNIE ARDEN wrote "Use the Mail to Build Your Business" in the March issue.

Self-Confidence. Successful people expect success and would probably consider themselves successful even in the face of failure. *Failure* is not in their lexicon.

WHAT'S A MILLION DOLLARS

The product- and service-oriented businesses profiled here are not directly comparable. The product businesses are measured by gross annual sales, just as Fortune 500 com-

panies are; the service businesses are measured by gross annual income. Though we have not measured net income, it's clear that service businesses have fewer expenses and thus produce more profit than product businesses.

Why have these people continued to operate from their homes, instead of expanding into corporate suites? The point of succeeding at business is to make money, and you

can obviously make more money if your expenses are lower. Just as it's often cheaper to hire freelancers than full-time employees, it's cheaper to work from home than from a commercial building. Some home-businesspeople cited the lack of a commute or the chance to be near their children as a reason for staying at home. And, when you've got a million-dollar business, chances are you've got a spacious and comfortable home.

Electronic Retailer Makes Cash Register Ring

SNAPSHOT

Philip Schier, Sudbury, Massachusetts

BUSINESS: Computer Express, Inc., computer products retailer

START-UP DATE: 1985

ANNUAL SALES (GROSS): \$2.1 million

EQUIPMENT: Six MS-DOS computers on a Novell network; six 2400-baud Hayes-compatible modems; Toshiba 321SL printer

Rx FOR SUCCESS: "Put together a good sound business plan and don't underfinance."

Computer Express is to the electronic shopper what McDonald's is to teenage mall-walkers. On the networks, Computer Express is ubiquitous.

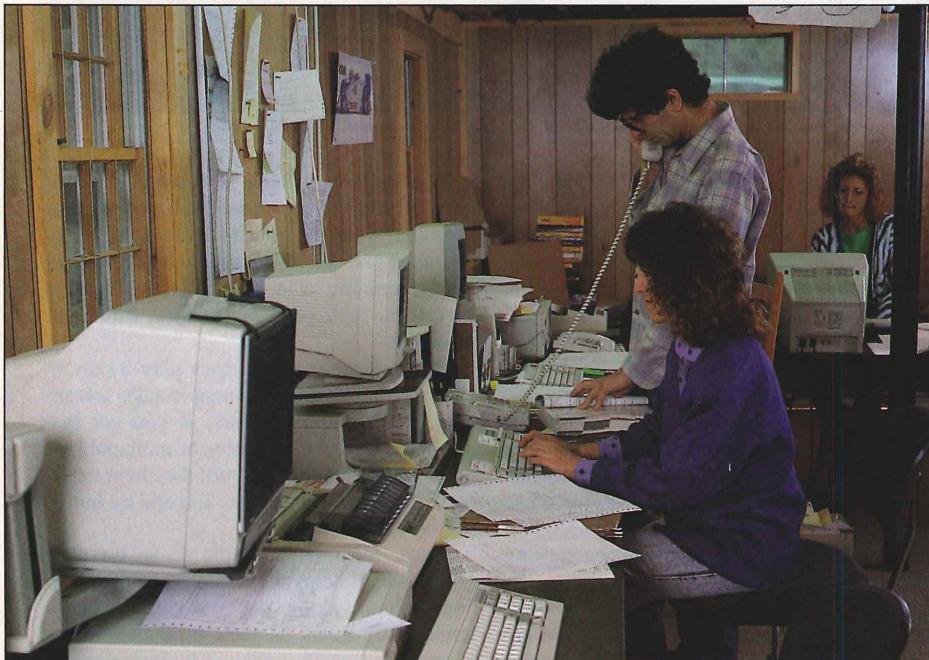
A retail outlet is not a typical home business. Computer Express, started by Philip and Lesley Schier from their home, sells computer software, accessories, peripherals, and books through on-line networks. People order goods electronically by entering a credit-card number on-line, or by phone, and

receive the goods in the mail several days later.

While CompuServe was testing its electronic-mail concept in 1984, Philip Schier was thinking about creating a computer-based business that didn't require traveling. As a computer programmer, he was on the road constantly and found it very tiresome. CompuServe offered a new opportunity, the perfect answer for a businessman who wanted to stay home.

"Selling computers and software over the network seemed appropriate, a natural fit," says Schier, whose computer background gave him a good understanding of both the products he sold and the method of selling. The store opened with a line of business and

"I'm at this business until 9 p.m., five nights a week. It's long, hard work."



Schier's six modem-equipped computers take orders 24 hours a day, seven days a week.

recreational software. The first sale was made on their first business day. "The day we got our first electronic order, I knew this business was going to make it," says Schier. "There was actually someone out there on the network who wanted what we had to offer. Within a couple of days he'd have the products he'd purchased and we'd have our money."

When the business started to work, the Schiers expanded the range of products to include computer accessories and peripherals and software for IBM, Macintosh, the Apple II series, and Atari ST computers. The merchandise is sold at competitive prices, approximately 30 to 40 percent off list. Schier says that customers generally buy recreational and home-accounting software first, but appreciation for the service usually brings them back as business buyers for large-ticket items.

"The key to our success has been solving problems and answering questions quickly with electronic mail. Another factor is attention to detail: We inspect everything to make sure all parts and manuals are there, so a customer won't open a box and stand around wondering what to do with the equipment."

At first, all of Computer Express's sales came through CompuServe. But they have since set up shop on other networks, including Prodigy, The Source, Delphi, and GE-nine.

Business headquarters, located in the basement of the Schiers's house, has its own side entrance. In a 40-by 30-foot space, six employees take orders from six incoming phone lines, some of which are toll free. Orders also come in by computer. Six computers are networked for order entry. Only products that are difficult to acquire are inventoried in the house. All others are ordered from nearby suppliers and arrive for inspection within 48 hours.

"Our service is open 24 hours a day, 365 days a year. Computers, unlike people, don't take holidays. Our computers are on all the time, with orders coming in from all over the world. I work at this business until 9 p.m., five nights a week. It's long, hard work." But as far as Schier is concerned, it beats traveling.

Former Bank President Sells Financial Know-How for \$5,000 an Hour

SNAPSHOT

Somers White, Phoenix, Arizona

BUSINESS: Somers H. White Co., Inc., management consultants

START-UP DATE: 1966

ANNUAL INCOME (GROSS): Over \$1 million

EQUIPMENT: Three MS-DOS 286 computers, one MS-DOS 386 computer, Novell ELS Level 1 local-area network, Hewlett-Packard ScanJet, Hewlett-Packard LaserJet Series 2, Hayes-compatible 1200-baud modem, Panasonic FX-VM88 fax board

Rx FOR SUCCESS: "Program yourself for success. Otherwise you're programmed for failure."

Somers White has done consulting work for 400 of the Fortune 500 companies. Executives from 25 countries have attended his best-selling presentation, "Increasing Negotiating Skills Without Manipulation." Large companies hire him to speak to their employees. He charges \$5,000 an hour, or \$6,500 for a half day. He's spoken in 50 states and every continent except Antarctica.

White could have been successful in any number of corporate positions, but early in his career, he decided that he'd rather run his own show and reap the benefits. "Most people end up running a business for the benefit of employees. What you want to do is run it for the benefit of the owner—you. The idea is to take the time to travel and do what you want to do—so you are running the business rather than letting the business run you," says the self-confident consultant.

Upon getting a master's degree from Harvard Business School in 1959, White started his career on Wall Street in the Executive Training Program of the Chase Manhattan Bank. He then took a marketing job with a new bank, saw deposits go from zero to \$33 million in just 18 months, and eventually became president of The Northwest Bank of Seattle (which has since merged).

In 1966, he started the Somers H. White Company. The management-consulting firm specializes in helping organizations secure financing, which White thinks is the weakest area for most executives. He charges \$400 an hour for his consulting services.

Clients come from both referrals and direct solicitation. He maintains a 60,000-name database of prospects, mainly trade associations, meeting planners, and corporate executives. A separate database of 10,000 current customers who have purchased his cassettes and books provides names for direct-mail solicitations. (The cassettes and books, which sell for \$80 to \$200, are based on his presentations.) Through such efficient use of computers, White has whittled down his staff



Somers White and his wife, Susan, run a management-consulting firm from their home.

"The idea is to travel and do what you want—so you are running the business rather than letting it run you."

from fifteen employees to four part-timers.

"I think successful people look a little further down the line," says White. "Things that are unpleasant won't bother you; they won't destroy your productivity, if you focus on your long-range goal. Success is a matter

of deciding who's going to be in control. The computer lets me do that more and more. But even the computer won't help if you don't have a system laid out. Before clients ever see anything, they always say one thing, 'You're so organized!'"

Organization and planning are part of White's personality. "Last Christmas I took my family around the world, and the Christmas before we went to Rio and then Buenos Aires for New Year's. Both trips were planned two years in advance.

"I program myself for success every day, so I can make the day successful, then the week, and so on. The next thing you know, your life is a success, just like you planned it to be."

House-Maintenance Service Cleans Up by Never Saying No



Nanci Wright's cleaning business has brought her awards, security—and happiness.

SNAPSHOT

Nanci Wright, Tyler, Texas

BUSINESS: Wright-Way Cleaning Service, Inc., home-maintenance service

START-UP DATE: 1982

ANNUAL SALES (GROSS): \$1 million

EQUIPMENT: Apple IIc and IIe computers, Epson printer

Rx FOR SUCCESS: "Be self-disciplined. Get dressed right for work so you feel professional. Make yourself get things done."

didn't say no. That first job led to another, and soon word of mouth brought enough referrals to keep Wright working seven days a week.

Today, Wright-Way Cleaning Service, Inc., a family business operating out of Wright's home in Tyler, Texas, does everything from carpet cleaning to roof repair. Wright-Way has 51 full-time employees and 6,000 regular customers, many of whom own rentals that need upkeep.

The fledgling business struggled through its first year. Then Wright got an unexpected break: An article about house-cleaning firms appeared on the front page of the women's section of the local newspaper. "My business was mentioned near the beginning of the article," says Wright. "The next day, I received 198 phone calls in six hours. That

"My dad told me it didn't matter how much money you made as long as you were happy. We're happy. The money just happens to go with it."

shows you what press can do for a business!"

Wright returned the 198 calls and parlayed them into a business with 1,000 customers by its second year. Wright was named Tyler's Entrepreneur of the Year in 1986.

Shortly after being laid off from an insurance company, Nanci Wright was asked by a friend to clean a smoke-damaged apartment. He had already called everyone in the business and no one would take the job. Wright



Wright and five of her 51 employees—no job too big or too small.

and both Dallas and the state of Texas's Miss Innovative Idea of the Year in 1987. With all this free publicity, most of Wright's business has come through referrals. Wright almost never turns down a job, no matter how small or unprofitable it may be, because it so often leads to another.

Wright-Way is a family business: Nanci and her husband are president and vice president, respectively; Wright's mother is office manager; her father is comptroller; and her brother does construction for the company.

"My dad taught me how to be successful," says Wright. "He said if you want anything out of life you have to work for it, and I started to work when I was 12. Dad said I would have to work Monday through Fri-

day to keep up with the competition and I'd have to work Saturday and Sunday to be better."

"It takes a lot of self discipline to make it. My husband and I work from 7 a.m. to midnight, but that's okay because we're at home. We bought a house on a country road with lots of land for our trucks and plenty of room inside for office space. Being here means we are able to watch the kids playing, make them dinner, and help them with their homework. When they come home from school, they come home to the smiling faces of their mom and dad. My dad also told me it didn't matter how much money you made as long as you were happy. We're happy. The money just happens to go with it."

Video Publishers Reel in Profits with Avant-Garde Offerings

SNAPSHOT

Sheldon Rochlin and Maxine Harris, Montauk, New York

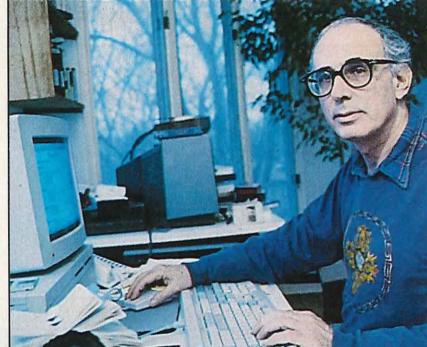
BUSINESS: Mystic Fire Video, Inc., avant-garde video publisher

START-UP DATE: 1985

ANNUAL SALES (GROSS): \$1.5 million

EQUIPMENT: Macintosh II and SE computers, Epson Equity II computer, Apple LaserWriter printer, Citizen printer, Hayes 2400-baud modem, AT&T 3520D fax machine, Mita personal copier

Rx FOR SUCCESS: "Deliver the right product at the right time."



Sheldon Rochlin provides "serious videos for thinking people."

Sheldon Rochlin always thought he'd be a successful filmmaker. He had achieved critical success throughout his 25-year career by picking his projects carefully. But monetary rewards didn't always go hand-in-hand with acclaim.

In 1985, Rochlin and fellow filmmaker Maxine Harris plunged into the business world. Using a Macintosh II, the partners license video rights from producers and design and manufacture the packaging. They then market the products to retail book and video stores, and to consumers through direct mail and display advertising.

"We came into the home-video market with the right product at the right time, with our own films and some made by people we knew—all of them little known by the general public," says Rochlin. Mystic Fire Video introduced a collection of American avant-garde movies by Maya Deren and Kenneth Anzer, and Stan Brakhage's *Dog Star Man*. The line grew to include video biographies of contemporary artists. None of these special-interest videos were in great demand, but timing was on their side.

"When we started, the home-video market was exploding. The VCR market has

"It still amazes us that we started on the kitchen table in our apartment"

since grown to almost 60 percent household saturation. No one was serving our segment—serious videos for thinking people. We expected the business to work, but the response has been bigger than we anticipated.

"We started off on the kitchen table in our New York City apartment, thinking of it as a sideline business," says Rochlin. They have since moved to Montauk, New York, on the eastern tip of Long Island. "That first year we took in \$17,000. It was really only enough to pay the rent, but it was enough to keep us pushing along. We ran at a loss for two years, working without salaries, pretty much investing our time and our work. By the third year we grossed around \$100,000, but it was still just the two of us, and we ran a tight ship."

Last year, business really took off when

Mystic Fire obtained the licensing rights to three Andy Warhol underground classics—*Flesh*, *Trash*, and *Heat*. "Hundreds of stores ordered those videotapes from us, and then became aware of our backlist." Then Mystic Fire added the six-volume series, *Joseph Campbell and the Power of Myth* (originally shown on PBS), to its product line. The \$149.95 set sold nearly 100,000 units in the first three months of release and hurtled Mystic Fire's sales over the million-dollar mark for the year.

Building on that success, Mystic Fire will soon sell the audio version of the Campbell series through direct mail, and the audiotapes will eventually become a Book-of-the-Month-Club selection. In June, the company is releasing the four-part *Ring of Fire* series that ran on PBS. And next fall, it will release two feature films based on the James Joyce novels *Ulysses* and *Portrait of the Artist as a Young Man*. "We pick products that will have a long life and continue selling from our back list."

Even with the addition of these popular video offerings, Mystic Fire would not have succeeded had they not persisted year after year. A freelance public-relations expert helped with a press campaign—one of the highest priorities for the first year. "We placed articles in trades, newspapers, and magazines and continually send out new releases to build public awareness. Every time we got a response, we built on it. That helped us get accepted by some of the larger chains, like Tower Video, which gave us more credibility."

"I think it's pretty miraculous that we can put out videos that we like, and do it the way we want to do it. We set out to be successful in business and we believe it's definitely an attitude," reflects Rochlin. "But, it still amazes us that we started out on the kitchen table in our apartment."

Small-Town Woman Talks Her Way Through Bigger and Bigger Doors

SNAPSHOT

Dottie Walters, Glendora, California

BUSINESS: Royal Publishing-Walters International Speakers Bureau

START-UP DATE: 1963

ANNUAL INCOME (GROSS): Over \$1 million

EQUIPMENT: Eight Macintosh computers

Rx FOR SUCCESS: "Pursue your ideas. You might get turned down—that's all right. Don't give up. Try another way."

Dottie Walters is widely recognized as a master in the world of professional public speaking. But her success story had a humble start that was followed by years of striving to improve.

"In 1963, in the middle of a recession, I had to think of a way to make some money," Walters recalls. "My high school journalism teacher had inspired me to write, so I set off to the local newspaper office pushing two kids in a baby stroller. The wheel was falling off and everybody stared because I would stop and use my shoe to hammer it back on. I'll never forget standing at that newspaper counter with the broken stroller in a little country town (Baldwin Park, California). When I asked for a job, the lady there told me

to get out. But I was determined not to lose my home so I didn't take no for an answer. Instead, I asked to buy ad space wholesale and she complied. Then I got up the nerve to ask for the first week on credit, and she gave it to me. Everything has come from that woman giving me that \$20 credit at that little rural weekly 25 years ago."

Dottie Walters used that ad space to create a shopper's column. She wrote a paragraph about various products and charged the manufacturers or business owners a fee. She started speaking to the Rotary and other clubs to promote her column and soon became known as a local customer-relations expert. Business executives asked her to speak to their employees, and a second source of income was established. "When you get out there and do things, people offer you differ-

ent opportunities," says Walters. "If you sit home and mope, nothing will happen. People are naturally attracted to doers. Remember, success is always a do-it-yourself project."

Walters left the newspaper in 1965 and started Hospitality Hostess, a kind of Welcome Wagon operation that grew to 300 employees. Meanwhile, she continued to polish her speaking skills and educated herself by reading biographies of accomplished people. She wanted to share her business knowledge with others, so in 1977 she started *Sharing Ideas*, a two-page publication for speakers. Today, the 40-page publication, which goes out to 4,000 subscribers six times a year, is the largest of its kind in the world. Walters is editor and publisher.

She continues to speak throughout the United States, Canada, England, and Asia, has written several books including *Speak and Grow Rich* (Prentice-Hall/Simon & Schuster, 1989), and runs a speakers' bureau that helps speakers find engagements.

"People ask me how I did it, and all I say is, 'Every time opportunity knocked, I opened the door. You just have to watch for the opportunities that others miss.' I'm known as a can-do person. But everybody should be a can-do person." ■

"I'm known as a can-do person. But everybody should be a can-do person."

Dottie Walters: Tenacity and resourcefulness built her reputation as a customer-relations expert. Daughter Lillet is the company's executive director.



Where Women Can Get Business Know-How

Support Groups—Such as the Association of Women Entrepreneurs of Dallas—Can Help You Start and Run a Business

BY JOANNE PRATT

In the 1880s, etiquette books instructed women to leave cards with acquaintances and friends, if they expected to lead a "gay, social winter." In the 1980s, women are still dropping those "pasteboard protocols," not on silver salvers, but into the outstretched hands of potential business contacts.

The number of women-owned businesses is growing faster than businesses owned by men or those owned jointly by men and women. From 1980 to 1986, the number of businesses owned by women increased 62.6 percent to total 4.1 million, while individual non-farm businesses increased only 41.8 percent, to total 13.8 million. Entrepreneurship is a new phenomenon for women, according to *The State of Small Business: A Report of the President in 1986*, put out by the U.S. Small Business Administration.

A number of factors are encouraging women to open their own businesses. Some women do it for the flexible working hours. Others move out of the executive suite because they hit the corporate glass ceiling and can't advance to top management positions. They are attracted by the growing demand

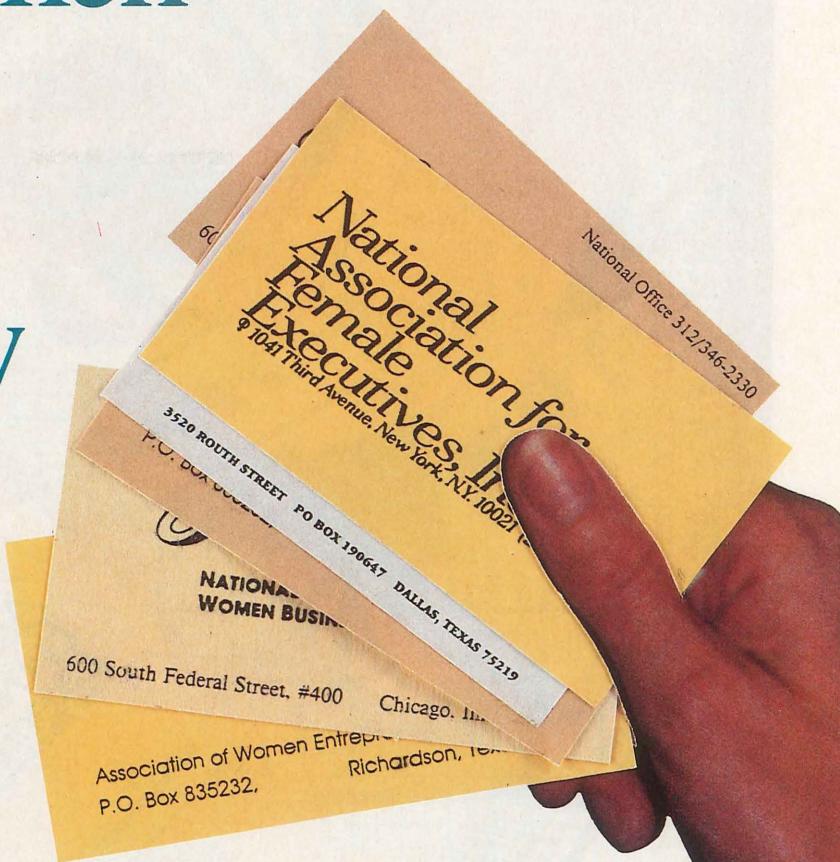
for contracted services, which opens new markets for small-business owners. Machines such as personal computers, laser printers, and fax machines have made it possible for the small business to compete with the quality and service of big business. And, entrepreneurs who work from home offices, as one in four start-up businesswomen do, have the extra advantage of lower initial costs.

WOMEN TAKE INITIATIVE

After its 1988 hearings, the House of Representatives' Committee on Small Business cited the need to foster the growth potential of women-owned businesses with management and technical training. Since the first survey conducted by the President's Task Force on women's business enterprise in 1977, federal efforts to support women business owners have been sporadic and generally ineffectual, according to the Committee. Thus, women are helping themselves.

Some gain skills in business schools or the corporate world, but women who don't have those backgrounds are turning to both local and national groups that provide support, business-skills training, and access to markets. Here is a case study of one such organization.

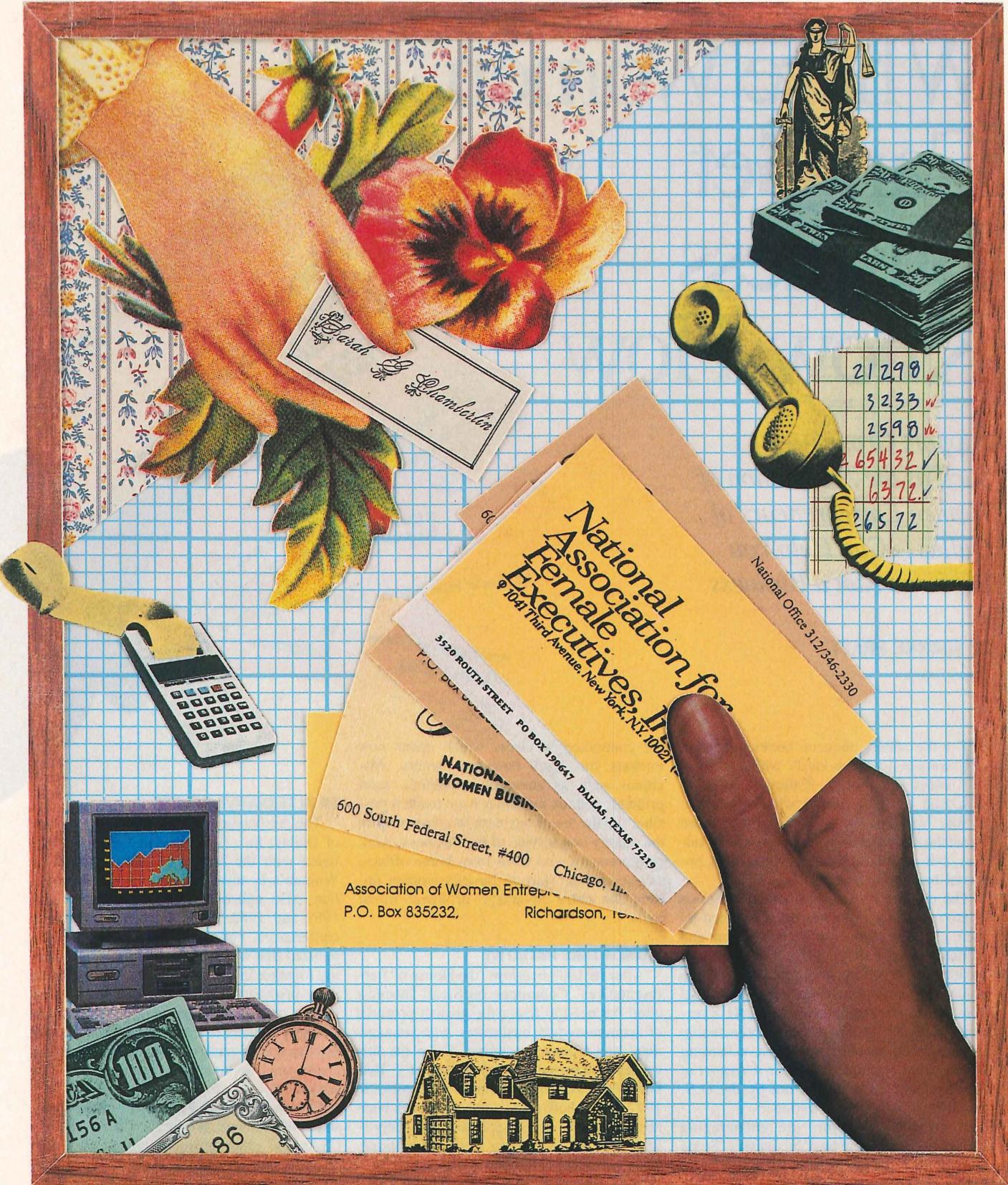
Contributing editor JOANNE PRATT writes the monthly *Shoptalk* column.



AN ALTERNATIVE COURSE

The Association of Women Entrepreneurs of Dallas, Inc. (AWED, but not to be confused with the New York-based American Woman's Economic Development Corporation, also called AWED) grew out of the 1981 and 1982 Texas Governor's Alliance conferences. Founder Jill Hight Sullins recognized that women learned more from talking together in the hallways about their business problems than from seminars. The Dallas group was formed to give women business owners a forum where they could discuss such issues as insurance, obtaining credit, and approaching professionals for advice.

Like the National Federation of Business and Professional Women's Clubs (BPW/USA) and other business groups in many communities, AWED hosts monthly meetings on such topics as how to market services and attract press coverage. It also encourages smaller, more frequent get-togethers of special-interest groups: The Breakfast Bunch meets to network; the Word-Processing Group shares marketing ideas; and groups of five women meet periodically as Power Part-



In the 1980s, women are dropping "pasteboard protocols" not on silver salvers, but into the outstretched hands of potential business contacts.

ners to discuss confidential business problems. Unlike the meetings of other special-interest groups, which are open to the public, Power Partner meetings are private.

A HOT TIP: RAISE PRICES

Elsie Allen, a former policewoman, fast-food restaurateur, and car saleswoman, benefitted significantly from joining a support group. She gained the business know-how to build Auto-Know Consulting Services, a service for car buyers, by joining women's organizations. She's a member of the local branch of the Business and Professional Women's Club and The Network for Executive Women, a Dallas group. But of all the groups she belongs to, she rates AWED as number one. Through the group she met clients, learned business skills, and got profitable advice.

Allen's first workshop, Car Buying Made Simple, was a flop. Only 12 people showed up. Marketing experts told her why: Customers shied away from her bargain \$10 fee because they felt it implied low quality. Now she successfully charges \$150 for an all-day

workshop and \$25 for her new 1 1/4 hour Lunch and Learn seminars. In her first year, she grossed \$31,000.

OFFBEAT IDEA GROSSES \$500,000

Australian nurse Margaret Alivizatos also relied heavily on AWED to start her unusual business. Alivizatos got the idea that prematurely born babies would be more comfortable sleeping on something like her dog's bed than on hospital mattresses. AWED helped her boost a product that was essentially a pillow case filled with tiny polystyrene balls into a business that grossed \$500,000 in 1988.

Alivizatos moved to Dallas in 1984 and, nine months later, attended a day-long AWED workshop on cash flow. Within one week, she had written her business plan and forecast. At a second AWED conference, she was introduced to a banker, through whom she was able to establish a line of credit. An AWED C.P.A. structured her manufacturing and distribution companies, another member set up a manual bookkeeping system, and still others provided public relations help.

Alivizatos cut and sewed her patient-comfort products from home for a year until the volume of plastic balls pushed her out of the house. The business now occupies 10,000 square feet, enough space to process volume orders for hospitals.

MANAGEMENT STYLE PRODUCES HIGH SUCCESS RATE

In forming entrepreneurial organizations, women have developed a potent weapon to teach themselves business strategies and gain access to markets. In part because of these groups, women-owned businesses have a high success rate. University of Oklahoma researchers cited by the Congressional Committee on Small Business followed women entrepreneurs for five years and found that fewer than one in four of their businesses failed, as compared to the national average of three out of five. Another contributing factor was management style: Women were more skilled at handling people. Combining those skills with tenacity and persistence adds up to future growth and a lively exchange of business cards. ■

GROUP PROFILE OF WOMEN BUSINESS OWNERS: ASSOCIATION OF WOMEN ENTREPRENEURS OF DALLAS

In 1987, the Association of Women Entrepreneurs of Dallas (AWED)* conducted a survey of its members (118 respondents). The results suggest a composite profile of the group:

- The average number of businesses owned was 1.7 and the average number currently operating was 1.2.
- 74 percent of the women financed their business from personal savings.
- 59 percent of the respondents were married and living with their spouse; 24 percent of all respondents had a spouse actively engaged in the business.
- Nearly 40 percent operated a home-based business; 83 percent do some of their work in a home office.
- 62 percent used a computer in their business.
- 71 percent belonged to two or more business or professional organizations.
- Over 50 percent of the women grossed \$50,000 or more in 1986; 4 percent grossed over \$1 million.

*AWED members operate a wide variety of businesses from home. These include: tax and capital funding; errand services; cleaning services; publishing Women's Yellow Pages; financial and tax accounting; mobile document destruction; reunion planning; party planning; mailing-list management; advertising; roommate registry; wardrobe/grooming seminars; couture; kitchen design and remodeling; business research; medical/surgical treatment of feet; messenger services; and conference and meeting planning.

WHERE YOU CAN FIND A WOMEN'S BUSINESS GROUP

The Small Business Administration (S.B.A.) is the first place to inquire about business groups in your community. Contact the nearest S.B.A. regional office listed under United States Government Offices in the telephone directory. Or call the National Answer Desk ([800] 368-5855) to locate the nearest local office. Many public libraries also keep lists of community organizations. Look for local chapters of these outstanding groups:

- The National Association of Women Business Owners (NAWBO); 600 South Federal Street, Room 400, Chicago, IL 60605; (312) 922-0465.

NAWBO provides education, management, and technical assistance through 38 local chapters. Membership is limited to women who are already in business. Around 20 percent of NAWBO members trade overseas. NAWBO emphasizes training in management, marketing, negotiation skills, long-range planning, capital formation, and cash-flow management. Members and a professional lobbyist actively campaign on state and federal levels for public policies in support of women business owners.

- The National Federation of Business and Professional Women's Clubs, Inc. (BPW/USA); 2012 Massachusetts Avenue NW, Washington, DC 20036; (202) 293-1100.

BPW/USA, established in 1919, is the oldest organization for working women. About one-third of the 110,000 female and male members own small businesses. The group lobbies in Congress and to elect candidates through its own Political Action Committee. It gives grants for continuing educa-

tion to single parents and engineers, among others. Its resource center is open to the public. Members receive insurance and medical benefits.

- The National Association for Female Executives, Inc.; 127 West 24th Street, New York, NY 10011; (212) 645-0770.

This organization, with 500 local networking groups, provides information tools that help women advance in their careers. About 20 percent of its 190,000 members own businesses. The group just launched a venture-capital fund that will invest in businesses that are 100 percent women-owned. It publishes the bimonthly *Executive Female* magazine and holds regional conferences and local seminars.

- Ali Lassen's LEADS Club; Ali Lassen, P.O. Box 24, Carlsbad, CA 92008; (619) 434-3761.

Started in 1978 by a California executive to assist women exclusively through networking, the group has more than 5,000 members (more than three-quarters are women) in 277 chapters nationwide.

- National Association of Women's Yellow Pages, Inc.; P.O. Box 87524, Chicago, IL 60680; (312) 470-2520.

This organization has 22 full members, each of whom publishes a local directory listing women-owned businesses, women's organizations, and women in sales or management positions in a given area. Contact the above address to inquire about starting a directory or being listed.

How to Get Your Readers' Attention

The Ins and Outs of Display Type Using GEM Artline and LetraStudio

BY STEVE MORGENSTERN

Creating printed materials such as brochures or newsletters with desktop-publishing (DTP) software saves time—but what do you really save if nobody reads them? Not much, of course. Yet several elements go into making printed pieces that people want to read: what's being said, how it's being said, and, a key for desktop publishers, how it's composed on the page. And of all the elements that make up successful page design, one of the first that can grab a reader's attention is display type.

Display type, generally used to set headlines and titles and to create logos, differs in several ways from body type, the faces used to set the bulk of text in your publication. My focus this month is on two new programs—*GEM Artline* for MS-DOS computers and *LetraStudio* for the Macintosh—that bring display-type capabilities once reserved for highly trained graphic artists to your desktop.

WHY USE DISPLAY TYPE?

You don't have to use display type at all. In fact, in a piece such as an annual report or a financial newsletter, you may want the conservative feel of body type in a larger size for headlines and other headings. More often, however, you want titles and major heads to do more than just deliver the text. You want to attract attention. You want to deliver a message about the contents of a book, brochure, advertisement, or article by choosing typefaces that convey an emotional quality. Look on the shelves of your local bookstore, at the extraordinary variety and cleverness of the typography on book jackets—and the ways in which you are encouraged to judge a book by its cover. This is the art of display typography.

Making the most of attractive and varied display type requires more than your imagination. It begins with a wide choice of typefaces. Do you wish to run the headline for your Back to School catalog in a typeface that resembles the team letters worn by high-school athletes? Do you think the headlines in a travel brochure about Japan should have an oriental flavor? Whether your taste runs to

cliché or true cleverness, sift through a generous catalog of fonts—available from publishers such as Bitstream ([617] 497-6222) and CompuGraphic ([800] 622-8973)—to find the typeface that evokes just the right mood and message.

Once you've chosen a display type, you often want to fine tune, manipulate, and even distort the characters. Many applications of display type use letterforms as artistic design elements which can be radically modified to achieve an effect. Look at company logos and, once again, at book jackets. Has the designer elongated a portion of a letter, or rotated type at an intriguing angle, or closely connected letters to form appealing shapes?

CREATING DISPLAY TYPE: THEN AND NOW

There are two ways to create these effects using traditional methods. One is to order custom type from a phototypesetter or use rubdown transfer type (Letraset's Instant Library is the most common), and then manipulate the type using special cameras with distorting lenses. The other is to have the lettering done by hand by an accomplished artist. In either case, achieving mechanically

precise lines in display type often requires laborious retouching or preparing the original artwork at drastically enlarged sizes and radically shrinking it.

Making sophisticated display-type creation available through personal-computer software, however, is a major breakthrough for both the professional designer and the enthusiastic amateur. The computer relieves the professional of the tedious work involved in preparing display type. The process becomes interactive, using the on-screen display and laser-printer proofs to achieve the desired effect far more quickly and economically than before. And the amateur moves into a realm that was formerly closed off altogether by the twin requirements of special equipment and manual dexterity.

GEM ARTLINE

GEM Artline is one of the first PC-based illustration programs to allow complex curve editing and PostScript output. It can be used to create a wide range of graphic art, but is particularly powerful when it comes to type manipulation.

On its basic level, *Artline* is an object-

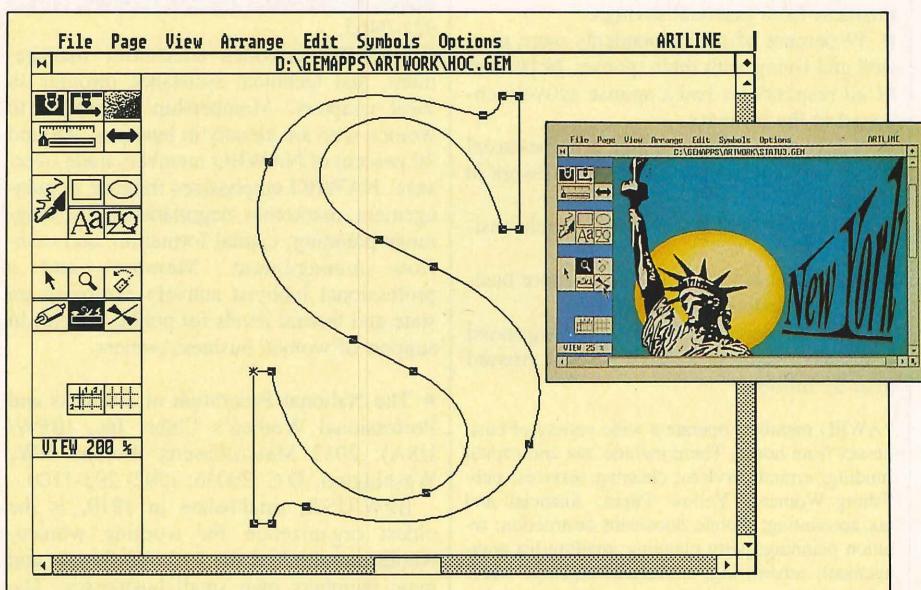


Figure 1. When working with GEM Artline, you manipulate display type by adjusting the control handles or points that appear on each letter's curves, such as on the S above. Simply drag the control point with a mouse to adjust any curve.

STEVE MORGENSTERN is a contributing editor for HOME-OFFICE COMPUTING.

oriented drawing program. That is, you create illustrations out of straight and curved lines and shapes, rather than dot by dot as with a paint program. The program supports up to 16 colors and 100 shading gradations of these colors, although only seven distinct gradations of gray will print on a 300-dpi (dots per inch) laser printer.

Graphic objects created with *Artline* can be resized, copied, rotated to any angle, flipped, and skewed (distorted along a diagonal). None of these features are revolutionary for an object-oriented drawing program, but they're handled well.

The key difference from previous programs is the ability to shape complex curved forms using what's called *Bzier curves*. Curves are defined by endpoints and the shape of the arc that connects them (see figure 1). *Artline* lets you directly manipulate these shapes on-screen. By adjusting control handles that appear at points along an object's lines, you can create any curved form. This system of controlling the shapes of curves has been available on the Macintosh through programs such as *Adobe Illustrator* and *Aldus FreeHand* for some time, and is one factor in the popularity of the Mac among serious graphic artists. *GEM Artline* brings this same freedom of shape manipulation to the PC.

The program offers the same level of control over type as it does with any other graphic element. You can actually see the points and arcs that compose each letter, and change them on-screen to create special effects. Do you fancy a distorted tail on a capital R so that the rest of a word can rest on it? Or is a perspective effect with a block of type desired? *Artline* gives you the tools you need to accomplish these manipulations.

When you have the effect you want, you can save the file in *GEM* format (the native

file format of *Ventura Publisher* and *Aldus PageMaker*) or as Encapsulated PostScript (EPS), which can be imported into nearly any page-layout program. One very unusual feature is that *Artline* will output your work at the maximum resolution of your printer, even if you don't have a PostScript printer. This is particularly significant in the MS-DOS world, where the Hewlett-Packard LaserJet standard predominates. Your *Artline* file will print out at 300 dpi on the LaserJet. If you decide you need to output the final result on PostScript-compatible typesetting equipment, you can save the same file in PostScript format and achieve results comparable to your LaserJet output.

The selection of fonts you can use with *Artline* is also impressive. The program comes with the *Fontware* installation kit and nine typefaces from Bitstream. Any additional *Fontware* font (and there are dozens available) can be used with *Artline* with full customization control.

As I write this, I've seen prerelease versions of two more sophisticated illustration programs for MS-DOS machines—the PC version of *Adobe Illustrator* (Adobe Systems, [415] 961-4400) and *Corel Draw* (Corel Systems Corporation, [613] 728-8200). They looked good, but when it comes to typography, they'll have a hard time matching *GEM Artline*.

SOFTWARE INFORMATION

GEM Artline (v1.0; \$495). System requirements: 640K IBM PC XT or PS/2; hard-disk drive; mouse; DOS 3.0 or higher. Digital Research Inc., (408) 649-3896.

LetraStudio (v1.0; \$495). System requirements: 1MB Macintosh (2MB recommended; required with MultiFinder); hard-disk drive; System 6.0 or higher. Letraset USA, (201) 845-6100.

LETRASTUDIO

LetraStudio is a new typographic tool from Letraset USA, publishers of *Ready, Set, Go!* and one of the most familiar names in graphic arts. The Letraset Instant Lettering type library is a familiar resource for graphic artists—a collection of nearly 1,000 typefaces available in sheets of rubdown transfer lettering. Everything from the sleekly modern to the slightly ridiculous is included in the Letraset collection.

Now the company is carefully transforming this vast typographic resource into computerized fonts. And to make use of these fonts, they've created *LetraStudio*, a type specification and manipulation program.

LetraStudio makes it easy to set type on straight lines or curves. Control is as precise as anyone could ask for. Type size and line-spacing can be adjusted to 0.01 point (72 points per inch) or less. Kerning and letter-spacing—tightening and increasing, respectively, the space between letters—are equally exact. Type width can be adjusted as a percentage of the normal width, allowing you to create condensed fonts when you need to fit in more copy horizontally.

LetraStudio provides Bezier curve control over both the baseline (the line with which the bottom of the type aligns) and the individual letters. This lets you shape your type, either to suit your creative urges or to fit a layout's precise requirements. You can even import images from other Macintosh illustration programs to serve as templates, and adjust your type to fit within that artwork.

Reshaping and distorting type is handled clearly with a set of flexible envelopes (see figure 2). Each envelope enables a different reshaping capability, such as horizontal or vertical distortion, and several envelopes can be employed sequentially to produce complex effects. If the preformed envelopes can't give you the look you envision, you can take total control of the type shape by adjusting its Bezier curves. But the envelopes not only make managing the distortions easier; they also speed your work dramatically.

Your *LetraStudio* creation can be saved in EPS format to import into page-makeup programs. The files can also be read directly by *Adobe Illustrator*, allowing you to add customized typography to *Illustrator* graphics.

Beware, however, that *LetraStudio* runs slowly on a Mac Plus or a standard SE (an SE/30 or a Mac II is better) and that some tools become disabled when you have only 1MB memory (2MBs are recommended).

The initial release of *LetraStudio* comes with two typefaces, and two more are delivered when you return your registration card. At this writing, 40 typefaces have been released, priced at \$75 each. Letraset promises to continue adapting its collection of typefaces to the electronic medium at a rapid pace until the current Instant Lettering library is available. As this comes to pass, the days of rubdown lettering will end forever in most computer-equipped graphic studios. ■

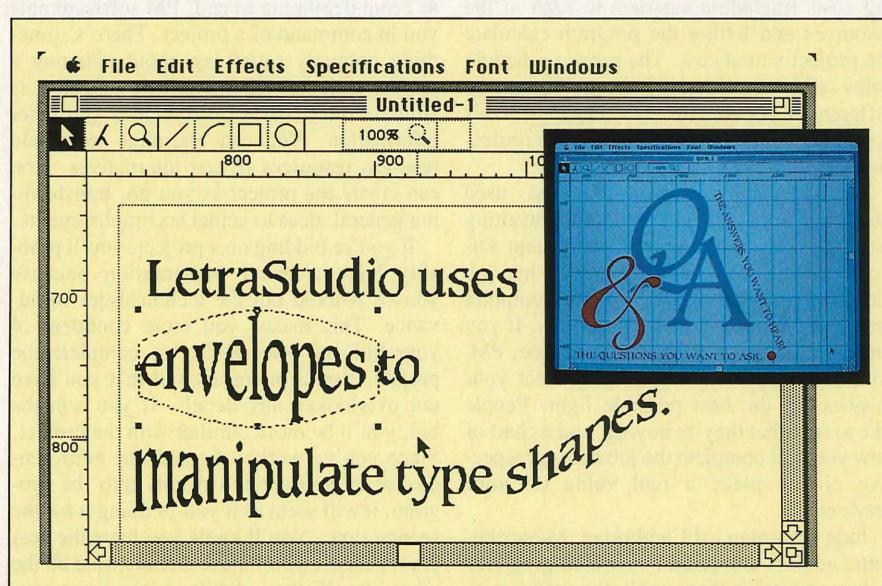


Figure 2. LetraStudio's main tools for reshaping display type are called envelopes. Several are supplied; the one above is being used to stretch the middle of the word vertically while leaving its ends intact.

Finish What You Start

Develop a Product, Manage an Event, or Keep Track of A Service Using Project-Management Software

BY BROOKS HUNT

You manage projects every business day and may not even realize it. You set goals, prioritize them, figure out how to accomplish them—and then get the job done. If you're like a lot of people, most of your goals have a specific end and must be completed within a specific time. In the business world, interrelated goals are called a *project*. Figuring out the necessary steps is called *project planning*, and overseeing the completion of the various tasks is called *project management*.

Projects are broader in scope than individual goals, encompassing many tasks and requiring several people and resources. To help organize a project's complexities, consider using project-management (PM) software. If you set work goals that must be accomplished in a limited time—as, for instance, many consultants do—you are a project manager and might profit from this specialized software.

ANSWERS TO COMMON PROJECT-MANAGEMENT QUESTIONS

To help you decide whether or not you'd benefit from this type of support, let's see how PM software helps others plan and manage the intertwined details of a major project. Then I'll give background information on PM software to assist you in making a buying decision.

Q: How do people use PM software?

A: PM software can be used to develop a product, such as a lengthy instruction manual; to manage an event, such as a wedding or show; or to keep track of a service project, such as installing a complex computer system. For instance, Terrell Brown used *Time Line* PM software to manage the Twin Cities Marathon, from Minneapolis to St. Paul (see "Selected Project-Management Software"). Bob Purcell, of Ridgewood, New Jersey, also chose *Time Line*. In his case, it was used to plan his hometown's Fourth of

July parade, which featured a full complement of floats, marching bands, fire departments, and about 1,000 participants. At each meeting before the event, Purcell printed out a list of tasks that needed to be completed that month, and the parade came off without a hitch.

Tony Knowles advises managers about the telecommunications field. His company, Communication Sales Dynamics Inc., located south of San Francisco in San Mateo, helps other companies install or upgrade telephone systems. By using *Time Line* to build templates for the various projects his company typically bids for, and then modifying the templates for specific circumstances, Knowles can use the most current and accurate information in planning each client's work.

Knowles also uses project schedules as a marketing tool. "They explain what we will do for a prospective client," he says, "which people will be working on the project, how long the project will take, and how much it will cost." He determines his fees by assigning costs (including salaries) to each of the resources and letting the program calculate the project's total cost. The project schedule helps sell his services, aids in explaining any differences between his bid and that of his competition, and gives his proposal a professional appearance.

Pat Burer, of Arlington, Virginia, used *MacProject II* in her computer consulting business (she now works at the Patent Office). Like Knowles, she prepared her job bids by planning the projects on the computer and including charts in her proposals. If you produce goods or perform a service, PM software reports can help you present your business in the best possible light. People like to see what they're buying, and a chart of how you will complete the job helps prospective clients place a real value on your services.

Judy Housman, of Cambridge, Massachusetts, advises companies on which programs to buy and helps them apply the software to their particular tasks. She counsels that you should only consider using PM software if you manage projects with more than 25 tasks

or if you manage more than one resource. If you oversee more than one project at a time, you also might be a candidate for this type of software (in which case, make sure the program will allow you to manage more than one project simultaneously). Housman has used PM software to determine if she could handle another client. She put all of her current projects and their due dates into the program, and then used *resource leveling* (see "Terms to Know") to find out if she had time for the additional work that a new account would demand.

In another example, I worked on a renovation project in which we rebuilt portions of a functioning office building over the course of a year. By identifying floor space as a resource (an item needed to complete a task), we knew exactly how much extra floor space would be needed at any time during the renovation. When we slipped off schedule, we were able to judge the shifting needs.

Q: What are advantages of using PM software?

A: From beginning to end, PM software puts you in command of a project. There's something uniquely satisfying about planning a project with software, and then watching its structure materialize on-screen as you enter information. You can rearrange tasks and reassign resources to test alternatives. You can create the project as you go, transforming general ideas to actual accomplishments.

If you're bidding on a project, you'll probably have a better presentation because you've worked out the technicalities in advance. This makes you more confident of your bid and your ability to complete the project. You're more assured that you have not overlooked any details. If you win the bid, you'll be more familiar with the project. Since you've worked through the entire endeavor as you entered details into the program, it will seem as if you're doing it for the second time. You'll know you have the best plan, because you'll have already tried all the *what ifs*. If they didn't work on-screen, you'll know not to bother trying them on the actual project.

More important, when the work has be-

BROOKS HUNT, a regular reviewer for HOME-OFFICE COMPUTING, plans and manages projects for the United States Patent and Trademark Office using *Time Line* and *MacProject II*.

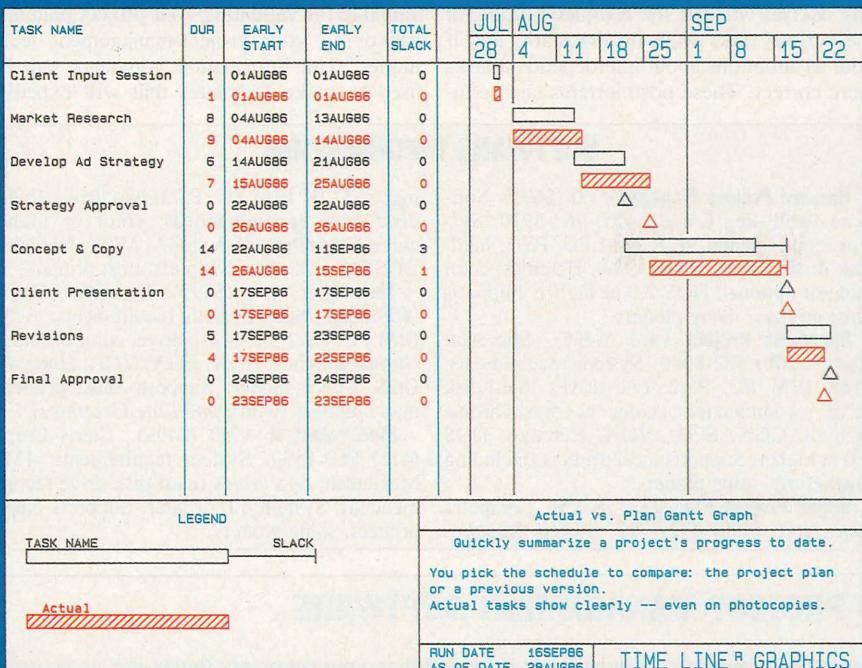


Figure 1.

Among the key benefits of project-management software are the charts and graphs these programs produce. For example, the Gantt chart pictured here details how long each task should take and how long it took for each task to actually occur. Another type of Gantt chart represents the duration of all tasks, with the first task appearing at the top and the last at the bottom. This way your entire project shows on a single graph.

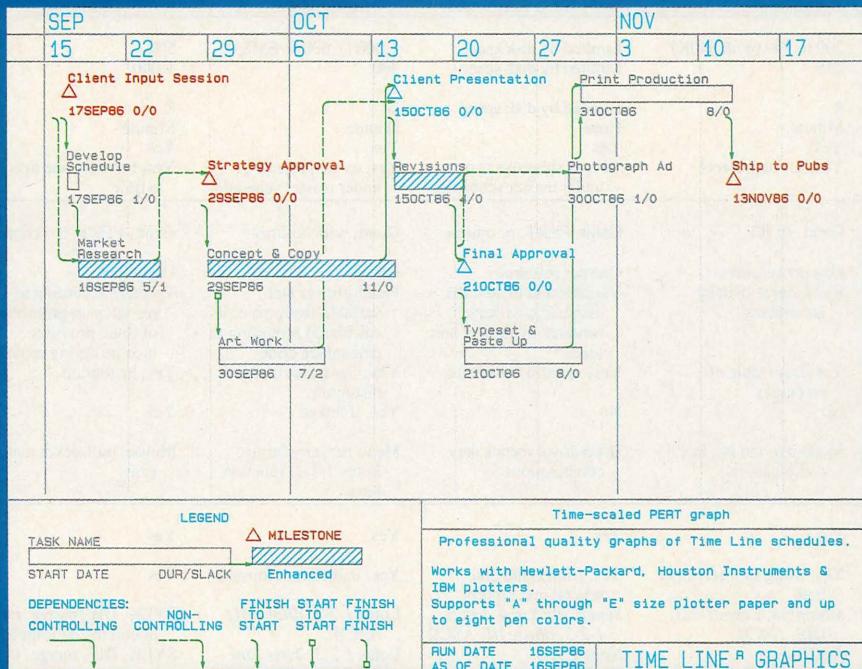


Figure 2.

Without using software, it's hard to track how various tasks in a project depend on each other. However, with project-management software, you can produce visuals such as a PERT chart (left), which graphically depicts the connections among a project's tasks. Preceding tasks appear to the left and succeeding tasks to the right of any given task, with lines connecting the boxes that represent related tasks.

gun, you will know how the project is developing. You'll know if you are ahead or behind; and if you are behind, you'll be able to simulate possible solutions to get back on schedule. Traditional techniques for catching up are to increase the number of resources or to work overtime. Working with PM software, you may discover that by rescheduling tasks, you can make up the time without such expensive solutions. Any project is dynamic.

By knowing your project's current status, you can make adjustments to minimize the impact of delays or to take advantage of the early availability of difficult-to-obtain resources.

This updating is also useful for reporting progress to clients. Tony Knowles makes weekly printouts to help manage his own company and provides regular progress reports to clients. Pat Burer also provided pro-

gress reports when key elements of her projects were completed.

Q: How can the software help me work?

A: In the planning stages, PM software gives you a framework for describing the project's goals. Then you divide the work into smaller pieces or *tasks* (the traditional term used in project management), which are also described. Finally, you identify the *resources*

(another term you'll come across) needed to complete each task. Resources are anything necessary to get the job done: people you work with, particular pieces of equipment, or subcontractors and consultants. PM software assists in scheduling tasks efficiently, ensuring that you don't over-commit a resource, offering professional-quality reports and charts that can help explain or sell your project, and monitoring actual progress versus planned progress.

PM software can also help you determine the cost of an entire project and evaluate how well the project was managed after it is completed. Costing and evaluating are especially useful if your projects tend to repeat themselves—for example, if you perform the same basic service for many clients, as Knowles does in telephone installations.

It's also helpful to conduct a post-project evaluation. You can determine what caused

any delays, whether the estimated times for the various tasks were on the mark, and if your assumptions about interdependent tasks were correct. These postmortems can be in-

valuable for validating your project plan and improving your project-management techniques. The information you learn can be used to make templates that will expedite

SOFTWARE INFORMATION

Harvard Project Manager v3.0 (\$695). Software Publishing Corp., (415) 962-8910. System requirements: 512K IBM PC, PS/2; hard-disk drive; CGA, EGA, VGA, Hercules; color monitor optional; DOS 2.0 or higher. Supports most printers, many plotters.

Microsoft Project v4.0 (\$495). Microsoft Corp., (206) 882-8080. System requirements: 256K IBM PC, PS/2; two drives (hard-disk drive recommended); color or monochrome monitor; CGA, EGA, VGA, Hercules; DOS 2.0 or higher. Supports most printers (including PostScript), some plotters.

Super Project Plus v3.0 (\$395). Computer Associates, (408) 432-1727. System Require-

ments: 512K IBM PC, PS/2; two drives (hard-disk drive recommended); color or monochrome monitor; CGA, EGA, VGA, Hercules; DOS 2.0 or higher. Supports most printers.

Time Line v3.0 (\$595). Symantec Corp., (408) 253-9600. System requirements: 640K IBM PC, PS/2; hard-disk drive; color or monochrome monitor; CGA, EGA, VGA, Hercules; DOS 2.0 or higher. Supports most printers, many plotters (with *Time Line Graphics*).

MacProject II v2.0 (\$499). Claris Corp., (415) 960-1500. System requirements: 1MB Macintosh; two drives (hard-disk drive recommended); System 6.0 or later. Supports Apple printers, some plotters.

SELECTED PROJECT-MANAGEMENT SOFTWARE

As with most software categories, programs for project management are produced at several levels—from thousand-dollar packages designed for massive projects down to general-purpose organizers that

can help you manage either a project or day-to-day life. In between are the mainstream project-management programs addressed in this article. Five of the most popular are highlighted in the chart below.

	Harvard Project Manager v3.0	Microsoft Project v4.0	Super Project Plus v3.0	Time Line v3.0	MacProject II v2.0
Program limits					
Maximum tasks per project	Unlimited (w/subprojects)	200 to 999 (with 640K)	Limited by disk space	1,000 (1,600 w/EMS)	500
Maximum resources per project	1,200	255	Limited by disk space	300	1,000
Maximum resources per task	1,200	8	Limited by disk space	24	8
Smallest task-time increment	Minute	Minute	Hour	Minute	Minute
Automatic resource leveling	Yes	Yes	Yes	Yes	Yes
Multiple projects	Yes, as subprojects	Yes, as subprojects	Yes, as subprojects or under master schedule	Yes, as subprojects or under master schedule	Yes, but only one open at a time
Main features					
Data entry format	Six, including Gantt and PERT	Gantt, PERT	Gantt, PERT, or outline	Gantt, with outliner	Gantt, PERT, bar charts
Calendars per project	One per resource	One per resource	One per resource	One	Unlimited
How it allocates project costs	As project overhead and fixed and variable task costs, against time unit	By resource in daily increments	Variable and fixed costs associated with each resource by project unit time	Fixed-project and variable-resource costs calculated according to percentage done	Variable according to resource on project unit of time; provides income during project
Warns of resource conflict or over-commitment	Yes, appears at bottom of screen	Yes, from table of resources	Yes, in various formats	Yes, Gantt chart, reports, histogram	Yes, histogram
Warns of conflict across projects	Yes, if subprojects used	No	No	Yes, if linked	Yes
User interface	Pull-down menus; key combinations	Menu bar; mouse; key combinations	Drop-down menus; key combinations	Menu bar, similar to Lotus 1-2-3; function keys	Mouse; pull-down menus; icons
Reports					
Gantt, PERT, resource charts	Yes	Yes	Yes	Yes	Yes
Actual vs. planned progress reports	Project and cost graphics; several text reports	Yes, using split screen of both	Yes, from Gantt and several text reports	Yes, in different formats	Yes
Export data	Lotus 1-2-3, dBase II and III, ASCII	Multiplan, Lotus 1-2-3, DIF, ASCII	SuperCalc 3 or 4, Lotus 1-2-3, dBase III, ASCII	Lotus 1-2-3, dBase III, ASCII	SYLK, DIF, merge, tab or comma delimited
Import data	HTPM, Time Line, Lotus 1-2-3, dBase, ASCII	ASCII	None	Lotus 1-2-3, Time Line 2.0, dBase III, ASCII, outline	SYLK, DIF, merge, tab or comma delimited
Documentation					
	Includes how-to-get-started section, principles of project management, reference, glossary, quick-reference card, tutorial, on-line help	Includes basic tutorial, advanced features, reference, new additions for v4.0, on-line help	Describes project management, general procedures, walks you through major functions; includes tutorial, reference, on-line help	Brief discussion of project management and various functions; includes case studies, disk-based tutorial, on-line help	General program description with reference section; HyperCard-based on-line help; disk-based tutorial
Pros	Excellent screen graphics and text reports; easy to use, especially with subprojects	Easy-to-use basic project management	Flexible interface; good reporting capabilities; "sideways" printing function	Excellent interface; good management of multiple projects; easy to learn	User interface easy to work with; best of project managers reviewed for exporting data; spelling checker
Cons	Cannot preview all reports on-screen before printing	Limited cost-accounting without export to Multiplan; limited PERT chart-viewing capabilities	Doesn't level resources across projects; hard to look up information quickly in manual	Only one calendar; must buy an additional graphics package for presentation-quality network charts	Large projects difficult because of the network chart interface

planning new projects and preparing bids. You validate not only the plan itself, but also its costs.

Q: How will I describe my project?

A: Identifying the tasks necessary to complete a project is much like outlining it. In fact, several packages use an outline structure to help you plan projects. If a project is very large, you may want to split it into phases or *subprojects*, which can be further divided into tasks. For example, if you're building a house, the subprojects might include foundation, framing, electrical, plumbing, and finish work. Then, the tasks for foundation might include excavation, form building, ordering materials, pouring concrete, and curing. All good project planning follows a basic top-down method of starting with your goal and working backward to pick up the details.

Enter the name of each task, the persons and resources needed to complete the task, how long you think the task will take, and what tasks must be done before or after the task you are currently defining. Returning to the house example, the task identified as form building might designate the concrete subcontractor as the responsible person or resource, two weeks to do the work (it's a big house), excavation as a preceding task, and pouring the concrete as a succeeding task. As you enter this information, the program will build a model of your project in what's called a *Gantt chart* (see "Terms to Know") and display it on-screen (see figure 1).

TERMS TO KNOW

Even if you have never been trained in formal project management, the documentation of all our selected project-management packages should explain the specialized terms in sufficient detail for you to operate the software. In order for you to evaluate the programs, however, I will briefly explain a few key terms here. I've already mentioned several—you know what tasks and resources are. Here's more essential jargon.

Gantt charts graphically represent how long any task will take by showing tasks along the left side of the graph and dates across the top (see figure 1). Each task's duration is represented by a bar opposite its name. The left side of the bar corresponds to the task's start date, the right side to the finish date. Gantt charts give you a separate entry for each task, with the first task usually appearing at the top and the last task at the bottom. This way the entire project shows on a single graph.

PERT charts or network charts graphically represent how the various tasks depend on each other (see figure 2). Each task is usually depicted as a box, with a brief description. The *predecessor* tasks appear to the left and *succes-* sor tasks to the right of any given task. Lines connect the boxes of related tasks to show the sequence for the entire project. The critical path is usually highlighted.

Critical path refers to a particular sequence of tasks, in which a delay in any one task will delay the entire project. In almost any project,

People like to see what they're buying, so a chart of how you will complete a project helps prospective clients place a real value on your services.

Q: How easy is it to learn PM software?

A: PM software can seem more difficult to learn than other types of software, but that's not just because of the programs. Formal project management itself is difficult. If you're unfamiliar with both, and you're trying to learn them at the same time, it can be frustrating. Some PM-software publishers are sensitive to this and try to provide a user interface you might be familiar with; for instance, most major MS-DOS programs use a spreadsheet-style interface. Also, most programs include on-line help, have excellent training or tutorial sections, and supply good reference manuals. As with most software, you can probably locate classes to help you learn the package. If you plan on this last

some tasks are *on the critical path*, some are not. If a task is not, it has *slack*. How long a task can be delayed without delaying the project is *slack time*. If a task is delayed beyond slack time, it becomes critical, and the critical path of the project shifts to reflect the change.

Subprojects are just what the name suggests—related tasks of a larger project. Subprojects both conserve memory and simplify organization of the master project. Resources and tasks that depend on each other are automatically connected back to the master project.

Resource leveling helps you manage tasks efficiently by keeping your resources busy, working in parallel when possible. For example, if you were building a sailboat, you might simultaneously have one crew construct the hull, a second work on the motor, and a third sew the sails. On paper, each task might take one month, assuming all available resources are dedicated to it. What happens, though, if one or two people share their expertise and time among two or more crews, becoming shared resources? A *resource histogram*—a graph representing how busy a resource is over time—would show that the shared resources were over-committed. That is, they were working more than 100 percent of the time, which is impossible. Resource leveling lets you adjust for this by extending the durations of the various tasks so that the critical resources are no longer over-committed. Some programs will do this automatically, others require your input.

route, check to see which programs are taught in your area before making a purchase.

Q: OK, I'm convinced that I need software to manage my projects. What should I ask before buying?

A: Obviously, one of the first considerations is the type of computer the software will be used on. This will immediately narrow the field of possibilities. Also, which printers does the program support? Although most programs work with most printers, verify that yours is compatible. Furthermore:

- What kind of interface are you accustomed to? As mentioned above, if you're not familiar with formal project management, and all other features are equal, look for a program that has a familiar interface (such as one designed after Lotus 1-2-3).

• How large are your projects? All of the programs considered here will manage large projects, but only some are suitable for smaller projects.

• Do you manage several projects at once? If yes, you should look for software that can control more than one project at a time.

• Do you manage several resources? If yes, do you manage them across several projects? If you answered yes to both, you should look at the resource-leveling capabilities of prospective programs.

• Do you market your product or service to clients? If yes, there are several functions to evaluate. First, look at the program's costing capabilities. Some programs will give progressive costs (as you go along), and others will give only total costs. Second, the reporting capabilities will be important to you. Make sure the program gives you the information and charts you need to explain your proposal to prospective clients.

• Do you expect to receive progressive payments? If so, you can use the software to link payment deadlines to the accrued costs of resources and the accomplishment of certain scheduled tasks.

• Do you expect to make periodic progress reports to clients? Then review the flexibility of the reporting function. Also, verify that the program can show actual-versus-planned task reports. You will want to be able to report on progress with actual dates.

THE RIGHT TOOL FOR THE RIGHT TASK

A program for project management is a tool. It should not rule you, but only provide data. As the manager, you are responsible for the success or failure of any project you undertake. Select a program that matches your needs and then use it as you would a spreadsheet or word processor. Experiment with alternatives and try to approximate your experiences as closely as possible. Once you have started using project-management software, you probably won't want to manage without it. ■

Laptops

*The Latest Word on Portable Computing,
Plus Seven Reviews and a Shopping Chart*

BY CHARLES BERMANT

Computing on the go is nothing new; for years, businesspeople have been carrying around imperfect versions of the portable dream. But there were always compromises to make. The most significant was weight: Lugging an early Compaq or IBM portable on a business trip was something that only the heartiest tried more than once.

Then battery-powered units arrived, offering a new range of shortcomings, from puny battery life to the added weight of a power pack. The rule was that portable computers were capable of everything that a desktop could do—but they did it half as well, and at twice the price.

STILL COMPROMISES TO BE MADE

With all the laptops on the market today, the compromises have diminished. These

CHARLES BERMANT wrote about mail merge in the March issue of HOME-OFFICE COMPUTING.

machines boast fast microprocessors, superb VGA-driven screens, fast and high-capacity hard disks, modems, complete keyboards, and long-life batteries. Unfortunately, these features are rarely all available in the same machine. Choosing a portable computer often requires a decision as to which features are expendable.

You may not be able to have everything, but enough is certainly within reach. Portable computing's innovations come primarily from three companies, NEC Home Electronics, Toshiba America Inc., and Zenith Data Systems. These companies regularly raise the ante with lighter, more powerful machines. And the newer Compaq SLT/286 offers so many features that it's easy to forget you're working on a laptop at all.

If you're satisfied with your desktop computer and need something to let you take work on the road, the right laptop for you can be as simple as a \$1,000 unit—such as the best-selling Toshiba 1000—and a copy of

LapLink to transfer data from 5.25-inch to 3.5-inch disks. If you want to use a portable as your only machine, you'll have a more difficult path. In many cases it will be easier, more practical, and cheaper to buy both an 80286 clone and a modest laptop than to find a portable that does everything.

FEATURES TO LOOK AT

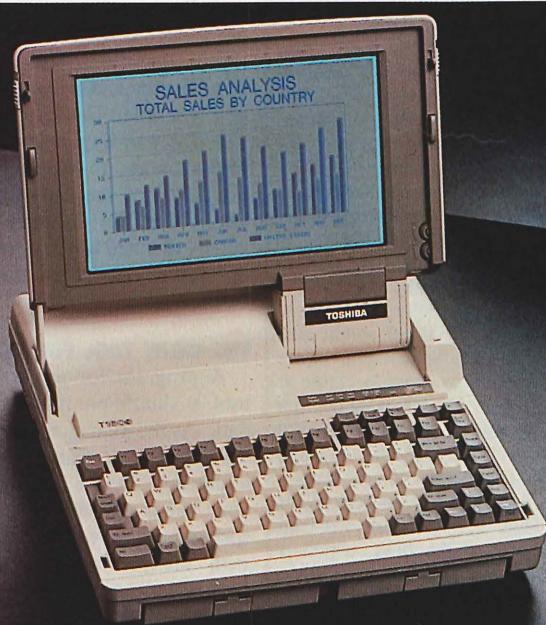
These are the issues you should consider before making a decision to purchase a laptop:

Size and weight. Some laptops weigh as little as six pounds; others weigh in at a hefty eighteen pounds. A battery pack, carrying case, and AC adapter add pounds, as does a hard-disk drive, a faster microprocessor, and a larger screen.

Clamshell portables, which have a screen that is built into a lid and fits over the keyboard, are the smallest and most practical category of laptop. Another portable—but not really laptop—design is the bulky lunch-pail styling of the Compaq Portable III and others. Here, the keyboard and the screen fold out from an oblong central processing unit (CPU). One great advantage of such a unit—even with no battery option—is its ability to accommodate standard expansion slots. Most portables can accept only special—thus more expensive—hardware upgrades, which means that a \$99 internal modem can end up costing \$400.

The portable of the future may look more like NEC's ProSpeed 386, a full-featured computer that slips into a docking station with expansion slots, power supply, and additional storage capacity. All that's missing here is a color monitor, although an NEC MultiSync could easily be added.

Battery life. A high-resolution screen, fast, high-capacity hard disk, and 1MB of memory require a lot of juice. Vendors have continually tried to develop a battery that can power all of these features for an acceptable time span, thought to be the duration of a cross-country plane ride. Good results have been elusive, especially since batteries always add unwelcome pounds.



The four-star Toshiba 1600 is feature-packed and impeccably designed.

For now, the practical choice is between "power-user" features and batteries. If you use a portable on an airplane or bus, batteries are required. And if your laptop uses a hard-disk drive, you'll need to pay close attention to battery life. On the other hand, if you're always near an electrical outlet, batteries might not be necessary. Toshiba's superb T5000/T3000 line is a prime example of successful and effective OS/2-ready laptops with no battery option. However, for most people, laptops with removable battery packs are the best solution.

Power. OS/2 runs best with an 80386 machine and at least 4MB of RAM, which is tricky for a battery-driven machine. Zenith suggests that users of its newest products minimize disk-drive use and decrease screen brightness to save power. This might save the battery, but the aggravation may prompt you to go for pencil and paper to complete the task at hand.

Some users might find it more economical not to have a hard disk at all. In a mobile

situation, a modem can be a far more important tool. Perhaps the best news about portables is that they are generally well thought-out: Interfaces for parallel and serial ports, along with external floppy-disk drives, keypads, and monitors, are standard.

Screens. If a machine doesn't have a gas plasma or backlit LCD screen, it is probably outdated. If graphics applications are part of your routine, a test drive is very important. Color, which many users are finding impossible to live without, is not yet part of the portable equation—although several manufacturers are now starting to show off color LCD technology.

The good news is that the monochrome screens on some portables look better than their CRT cousins. Despite some ghosting, Zenith's TurboPort 386's paper white display leaves almost every monochrome monitor in the dust.

Keyboards. Witness how some users swear by their IBM-standard model, while others profess an allergic reaction to the tactile

click. Portables are designed to save space, so although the placement of letter keys follows the standard Qwerty format, everything else is scattered across the board. Your portable will never have keys located in the same place as your desktop, so if you use both, hitting the wrong key will become a way of life.

FIND THE RIGHT FIT

If the screen quality is less than spectacular, or if you need color, you won't want to buy a portable that is inadequate in that particular area. On the other hand, if your laptop suits present and anticipated needs (a writer, for instance, may not need high-resolution graphics) then it may be superior to a desktop. Even if you move your computer only twice a month, portability will be worthwhile. One size doesn't fit all: Some people will need small and inexpensive models like Toshiba's T1000, while others will choose portables that leapfrog the abilities of some desktops.

Seven Laptops Reviewed

The following reviews represent a good cross-section of what's available in the laptop market today. For more information on these machines, as well as specifications on others, see the accompanying shopping charts.

Ratings Key: ○ Poor; ★ Average; ★★ Good; ★★★ Very good; ★★★★ Excellent.

four hours, as projected, you can crunch numbers from Chicago to London without a worry.

Some of the early Spark ads compared it to the Volkswagen Beetle, saying it was small, dependable, and affordable. The analogy continues: It is also unsightly and unfashion-

able. But Spark, like Volkswagen, has come up with an acceptable, utilitarian design that it continues to fine tune. As other laptops seem to make quantum leaps, the Spark continues to offer a reasonable alternative whose parts add up to a formidable whole.

—CHARLES BERMANT

Datavue Spark

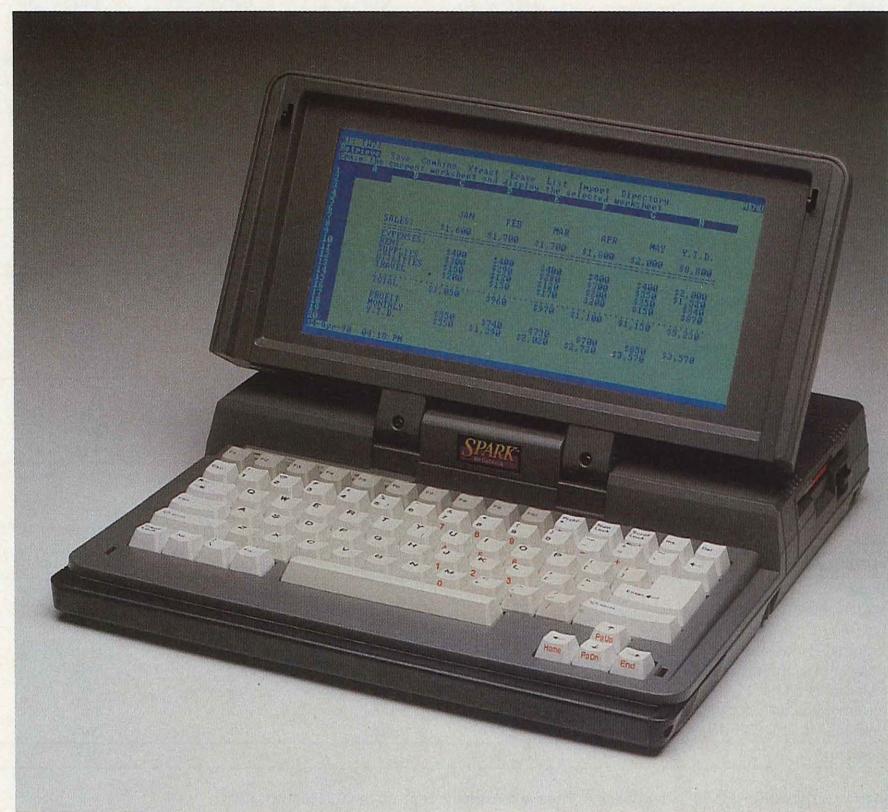
RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: \$2,195

If there were such a thing as designer laptops, Datavue's Spark wouldn't be among them. This plain-Jane laptop possesses little style. Such perceptions aside, it performs well and includes more than the standard laptop features for a reasonable price.

The Spark weighs in at around 11 pounds including the battery and a 20MB hard-disk drive. It has a switchable microprocessor speed, between 4.77 and 9.54 MHz, and a more responsive keyboard than Zenith's (although it is almost identical in layout). Furthermore, it includes two important power-management features: a low-battery indicator light and a warning beep that sounds when the lid is closed with the power on. The Spark is also one of the few laptops with a reset button.

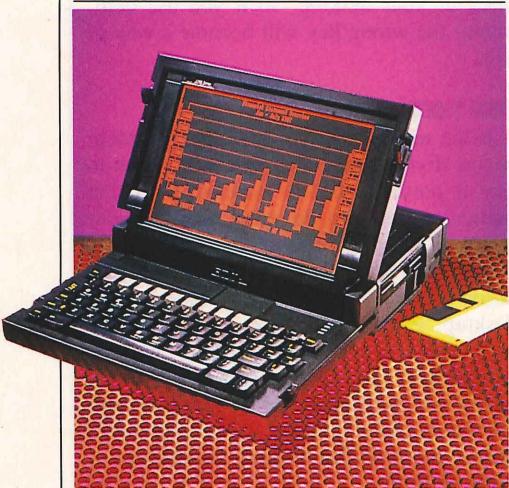
The Spark is powered by a rechargeable 1-pound NiCad battery that snaps into the computer's bottom. Two battery units are included with the system, so if each battery lasts



GRiDCase 1520

RATING: ★ ★

SUGGESTED RETAIL PRICE: \$4,670



The one thing that sets the GRiDCase 1520 apart from its competitors is its design. The housing of GRiD laptops is constructed from magnesium, which is more durable than plastic and comes in a solid black finish.

Not much bigger than a full-size atlas, the 13-pound 1520 has a 10MHz Intel 80C286 microprocessor. Most 286 laptops have a 12MHz or faster clock speed.

The GRiDCase supports CGA; with a maximum screen resolution of 640-by-400 dots (normal CGA resolution is 640-by-200), and the screen looks a lot sharper than a standard CGA display. Our review unit came with the optional gas plasma display (\$995), instead of the standard backlit LCD, and a 20MB hard-disk drive. The image on the screen looks razor sharp; it's one of the sharpest gas plasma displays I've ever seen. One small problem with the GRiD gas plasma display is that it consumes up to six times more power than a backlit LCD.

The removable battery packs weigh about two pounds each; they can be charged inside the computer or with the optional AC charger. Under normal operating conditions, the battery should last two to three hours.

The keyboard looks as good as other parts of the system, but it has a few problems: It's very tightly packed, which I had trouble adjusting to. It retains the original IBM small return key, instead of the standard large L shape. The keyboard lacks Caps Lock, Num Lock, and ScrollLock indicator lights and a

separate numeric keypad. A handle that doubles as a stand is located in the back of the laptop.

Two 256K ROM cartridge slots are located right over the keyboard. Other standard features include an external floppy drive, keyboard, monitor, parallel and serial ports, and a dedicated slot for an internal modem.

The GRiDCase 1520 is not the fastest laptop on the market, but besides the keyboard, it is well designed. With the magnesium casing, it can take punishments no other laptop can.

—STEVEN C.M. CHEN

Mitsubishi mp286L Model 220

RATING: ★ ★

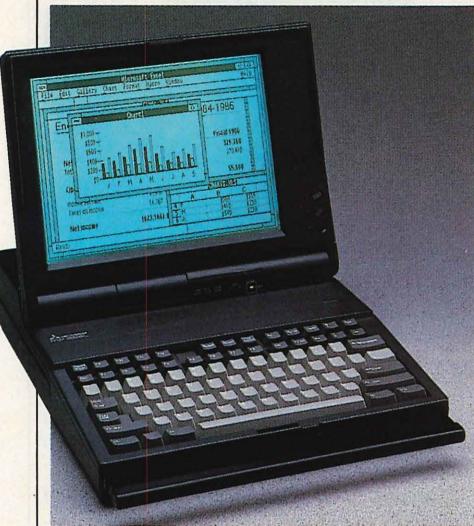
SUGGESTED RETAIL PRICE: \$3,995

Mitsubishi's first laptop computer is really a desktop machine in disguise: Almost all of

SEVEN 8088 COMPATIBLE LAPTOPS

Company/Model	Datavue Spark	Epson Equity LT	NEC UltraLite	Sharp PC-4641	Tandy 1400LT	Toshiba T1200HB	Zenith SupersPort Model 20
Suggested Retail Price	\$2,195	\$3,498	\$2,999	\$3,595	\$2,998	\$3,699	\$3,599
Microprocessor							
Type	NEC V-20	NEC V-30	NEC V-30	NEC V-40	NEC V-20	Intel 80C86	Intel 80C88
Clock Speed	9.54 MHz	10 MHz	9.83 MHz	10 MHz	7.16 MHz	9.54 MHz	8 MHz
Wait State	0 cycles	0 cycles	0 cycles	0 cycles	1 cycle	1 cycle	0 cycles
Memory (Standard/Maximum)	640K/640K	640K/640K	640K/640K	768K/768K	768K/768K	1MB/1MB	640K/1.6MB
Display							
Screen Type	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD
Screen Size	10.3 in.	10.3 in.	9.6 in.	10.5 in.	10.4 in.	9.8 in.	10.5 in.
Mode Support	CGA/4 gs	CGA/8 gs	CGA w/8 gs	CGA w/8 gs	CGA w/8 gs	CGA w/2 gs	CGA w/8 gs
Maximum Resolution	640-by-200	640-by-200	640-by-200	640-by-400	640-by-200	640-by-200	600-by-200
External Monitor Port	Yes	CGA	No	CGA/MDA	CGA	CGA	CGA
Drives							
720K 3.5-inch Floppy Disk	1	1	Optional	1	1	1	1
Hard Disk (Capacity/Speed)	20MB/37 ms	20MB/78 ms	1MB ³ /9 ms	40MB/45 ms	20MB/75 ms	20MB/78 ms	20MB/28 ms
Additional Ports							
Standard (Floppy/Parallel/Serial)	P, S	F, P, S	F, S	F, P, S	F, P, S	F, P, S	F, P, S
External Keyboard	No	No	No	No	Yes	No	No
External Numeric Keypad	No	No	No	No	No	Yes	Yes
External Expansion Box	Yes	No	No	Yes	No	Yes	Yes
Additional Features							
Built-in Modem	No	No	2400 bps	No	No	No	No
Standard Expansion Slots	No	No	No	No	No	No	No
Slot for Internal Modem	No	Yes	No	Yes	Yes	Yes	Yes
Power Source							
AC/Battery (Removable)	Battery	Battery ¹	Battery ¹	Battery	Battery	Battery	Battery
Maximum Battery Life	4 hr	7 hr	2 hr	2.5 hr	4 hr	5 hr	4 hr
Weight	10 lb	14.2 lb	4.4 lb	12.1 lb	13.5 lb	10.9 lb	13.4 lb
MS-DOS Version	2.11	3.2	3.3	3.3	3.2	3.3	3.21
Options							
Battery Pack	\$99	n/a	n/a	Note 2	\$80	\$79	\$159
Carrying Case	\$75	\$49	\$129	\$75	\$40	\$59	\$59
External Expansion Box	n/a	n/a	n/a	Note 2	n/a	\$1,198	\$499
External Floppy-Disk Drive (5.25-inch)	\$495	n/a	\$399	\$499	n/a	\$499	\$399
External Keyboard	n/a	n/a	n/a	n/a	\$120	n/a	\$99
External Numeric Keypad	n/a	n/a	n/a	n/a	n/a	\$99	n/a
Internal Modem (2400 bps)	n/a	n/a	n/a	Note 2	n/a	\$399	\$549
Warranty (months)	12	12	12	12	3	12	12

Key: gs = grayscale; ¹ Fixed battery pack; ² Price not available at press time. ³ Silicon Disk



The adjustable 11-inch backlit black-and-white display is one of the sharpest I've seen on any laptop. A unique feature designed to improve readability in darkness inverts the screen to white characters on a black background. However, when I found myself computing in less-than-perfect lighting conditions, merely changing the brightness of the screen was sufficient.

More thought could have been given to the layout of the mp286L's keyboard. A numeric keypad does exist, but it is an overlay of regular keys and takes time to get used to. More problematic is the splitting of the function keys into two different rows. The first consists of F1 through F8 and the second is F9 through F12. Even after using the machine for three months, I still reached to the right of F8 for help. To top it off, the function and arrow keys are half the size of the regular keys. I find this inexcusable, even on a laptop computer.

An external numeric keypad can be purchased to make up for the built-in one. Other optional goodies include a Hayes-compatible internal modem, OS/2, and 2MB of memory.

When it comes right down to it, performance is what really counts. With a 12 MHz microprocessor and the optional math co-

processor, I was going faster than I'd ever gone before. Most important, all of my computing needs were met by this very quiet, expandable machine. If you're in the market for a true laptop computer, look elsewhere. However, if a powerful portable computer is what you desire, the mp286L may be the one.

—JIM PHELAN

Sharp 4641

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: \$3,595

Since the subtleties often determine whether or not a laptop fits your needs, this machine could be a winner.

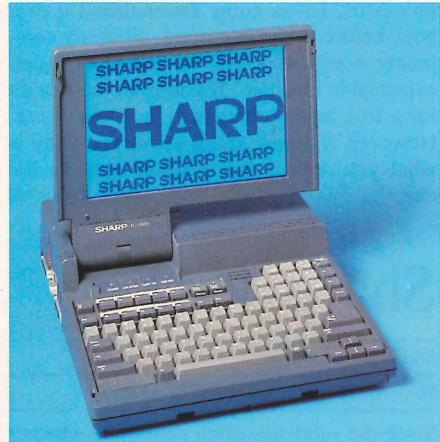
The PC-4641 falls somewhere between the SupersPort 286 and the Spark, borrowing advantages of both and adding a few of its own. Like the Spark and SupersPort, it has capable power-management features, including a lid-closure alarm and swappable battery. It is approximately the same size as the SupersPort, and it has an optional resident set-up program.

One included feature that should be part of

EIGHT 80286-BASED LAPTOPS

Company Model	Compaq SLT/286	GRiD GRiDCase 1520	NEC ProSpeed 286	Mitsubishi mp286 L-220	Sharp PC-5541	Toshiba T1600	Toshiba 3100e	Zenith SupersPort 286 Model 20
Suggested Retail Price	\$5,519	\$4,820	\$5,099	\$3,995	\$5,595	\$4,999	\$4,299	\$4,999
Microprocessor								
Type	Intel 80C286	Intel 80C286	Intel 80C286	Intel 80C286	Intel 80C286	Intel 80C286	Intel 80286	Intel 80C286
Clock Speed	12 MHz	10 MHz	16 MHz	12 MHz	12 MHz	12 MHz	12 MHz	12 MHz
Wait State	1 cycle	1 cycle	0 cycles	1 cycle	1 cycle	1 cycle	1 cycle	0 cycles
Memory (Standard/Maximum)	640K/3.6MB	1MB/4MB	1MB/5MB	640K/2.6MB	640K/3.6MB	1MB/5MB	1MB/5MB	1MB/2MB
Display								
Screen Type	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Gas Plasma	Backlit LCD
Screen Size	10 in.	10 in.	9.7 in.	11 in.	9.75 in.	10.5 in.	9.5 in.	10.5 in.
Mode Support	VGA w/8 gs	CGA w/5 gs	VGA w/16 gs	CGA w/6 gs	VGA w/16 gs	EGA w/16 gs	CGA w/2 gs	CGA w/8 gs
Maximum Resolution	640-by-480	640-by-400	640-by-480	640-by-400	640-by-480	640-by-400	640-by-400	640-by-400
External Monitor Port	VGA	CGA	No	CGA	VGA	EGA	CGA	CGA
Drives								
1.44MB 3.5-inch Floppy Disk	1	1	1	1	1	1	1	1
Hard Disk (Capacity/Speed)	20MB/29 ms	20MB/28 ms	20MB/27 ms	20MB/68 ms	40MB/25 ms	20MB/27 ms	20MB/27 ms	28MB/28 ms
Additional Ports								
Standard (Floppy/Parallel/Serial)	F, P, S	F, P, S	F, P, S	F, P, 2 S	P, S	F, P, 2 S	F, P, 2 S	F, P, S
External Keyboard	Yes	Yes	Yes	No	Yes	No	No	No
External Numeric Keypad	Yes	Yes	No	Yes	No	Yes	Yes	Yes
External Expansion Box	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Additional Features								
Built-in Modem	No	No	No	No	No	No	No	No
Standard Expansion Slots	No	No	No	No	No	No	1	No
Dedicated Slot for Internal Modem	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Power Source								
AC/Battery (Removable)	Battery	Battery	Battery	AC	Battery	Battery	AC	Battery
Maximum Battery Life	3 hr	3 hr	3 hr	n/a	5 hr	4 hr ²	n/a	4 hr
Weight	14lb	13.5 lb	15 lb	15.9 lb	14 lb	11.6 lb	12.8 lb	14.6 lb
MS-DOS Version	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.21
Options								
Battery Pack	\$129	\$90	Note 1	n/a	Note 1	\$129	n/a	\$159
Carrying Case	\$89	\$60/\$150	\$129	\$99	Note 1	\$129	\$79/\$99/\$299	\$59
External Expansion Box	\$999	n/a	\$899	n/a	n/a	\$1,198	\$1,198	\$499
External Floppy-Disk Drive (5.25-inch)	\$275	\$395	\$399	\$525	n/a	\$499	\$499	\$399
External Numeric Keypad	\$149	\$195	n/a	\$158	n/a	\$99	\$99	\$129
External Keyboard	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Internal Modem (2400 bps)	\$599	\$595	\$599	\$499	Note 1	\$349	\$399	\$549
Warranty (months)	12	12	12	12	12	12	12	12

Key: gs = grayscale; ¹ Price not available at press time; ² With two batteries installed.



every laptop is an adjustable utility that shuts down the screen and hard-disk drive after a period of nonuse. This isn't a ground-breaking option, but it makes sense. The 4641's greatest advantages have to do with user interface of the keyboard and screen. The backlit blue is easy to read and can be adjusted to suit almost any lighting condition. The keyboard is fully equipped, with both a numeric keypad and cursor keys.

The PC-4641 incorporates a feature that would be a boon to any PC. Function keys

are stacked five across, so any keystroke combination is within easy reach. But the keyboard falls short in its touch: There's a hint of mushiness. Still, this a small price to pay for a keyboard that requires fewer compromises than most of its competitors.

Ports—parallel, serial, and video—are conveniently positioned on the machine's side, within easy reach. The screen only bends back to a 45-degree angle, so hooking it to an external monitor could be a little easier. The "fully equipped" PC-4641 includes a 40MB hard disk and lists for around \$3,500. Most laptop users would rather have a modem than such a large hard disk. Nevertheless, this machine is a good value, as its strengths far outweigh its flaws.

CHARLES BERMANT

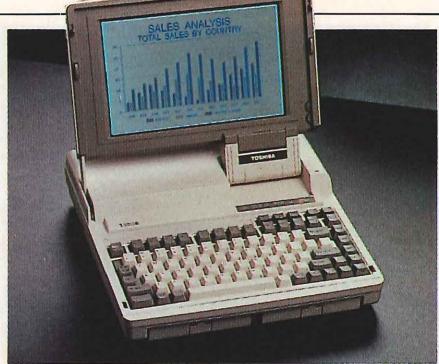
★ EDITORS' PICK ★

Toshiba T1600

RATING: ★ ★ ★ ★

SUGGESTED RETAIL PRICE: \$4,999

Toshiba's T1600 is a well-thought-out machine positioned dead between the compa-



ny's lower-end laptops and its luxury-liner AC-powered portables. With a 12MHz 80C286, this 11.6-pound AT-compatible unit raises the minimum standard by which laptops should be judged.

The unit itself is considerably bulkier than Toshiba's lower-end models and can be cumbersome to carry around all the time. The keyboard is still a little cramped, although the key action is responsive and includes the full complement of 12 function keys.

The layout takes a little getting used to. Here, the Home key is positioned next to Backspace. For the first few hours that I used this machine, I went Home whenever I tried to backspace. Still, the keyboard, combined

FIVE 80386-BASED LAPTOPS

Company/Model	GRiD GRiDCase 1530	NEC ProSpeed 386	Toshiba T5100	Toshiba T5200	Zenith TurboSport 386 Model 40
Suggested Retail Price	\$6,520	\$7,699	\$7,199	\$9,499	\$7,999
Microprocessor					
Type	Intel 80386	Intel 80386	Intel 80386	Intel 80386	Intel 80386
Clock Speed/Wait State	12.5 MHz/1 cycle	16 MHz/1 cycle	16 MHz/1 cycle	20MHz/1 cycle	12 MHz/0 cycles
Memory (Standard/Maximum)	1MB/8MB	2MB/10MB	2MB/4MB	2MB/8MB	2MB/6MB
Display					
Screen Type	Backlit LCD	Backlit LCD	Gas Plasma	Gas Plasma	Backlit LCD
Screen Size	10 in.	10.6 in.	9.5 in.	9.5 in.	10.5 in.
Mode Support	CGA w/5 gs	EGA w/8 gs	EGA w/4 gs	VGA w/16 gs	CGA w/8 gs
Maximum Resolution	640-by-400	640-by-400	640-by-400	640-by-480	640-by-400
External Monitor Port	CGA	VGA	EGA	VGA	EGA
Drives					
1.44MB 3.5-inch Floppy Disk	1	1	1	1	1
Hard Disk (Capacity/Speed)	40MB/28 ms	40MB/29 ms	40MB/29 ms	40MB/29 ms	40MB/28 ms
Additional Ports/Slots					
Standard (Floppy/Parallel/Serial)	F, P, S	P, S	F, P, S	F, P, 2 S	P, S
External Keyboard	Yes	No	Yes	No	Yes
External Numeric Keypad	Yes	No	No	No	Yes
External Expansion Box	Yes	Yes	Yes	Yes	Yes
Additional Features					
Built-in Modem	No	No	No	No	No
Standard Expansion Slots	No	No	No	1 PC, 1 AT	No
Dedicated Slot for Internal Modem	Yes	Yes	No	No	Yes
Power Source					
AC/Battery (Removable)	Battery	Battery	AC	AC	Battery
Maximum Battery Life	1.5 hr	3 hr	n/a	n/a	3 hr
Weight	13.5 lb	17.6 lb	15 lb	18.7 lb	18 lb
MS-DOS Version	3.3	3.3	3.2	3.3	3.3
Options					
Battery Pack	\$90	\$349	n/a	n/a	\$169
Carrying Case	\$60/\$120	\$119	\$99/\$299	\$99/\$299	\$79
External Expansion Box	n/a	\$1,199	\$1,198	\$1,198	\$499
External Floppy-Disk Drive (5.25-inch)	\$395	n/a	\$499	\$499	n/a
External Keyboard	n/a	n/a	n/a	n/a	\$149
External Numeric Keypad	\$195	n/a	n/a	n/a	\$129
Internal Modem (2400 bps)	\$595	\$599	\$399	\$399	\$699
Warranty (months)	12	12	12	12	12

Key: gs = grayscale

with a sharp blue-and-white screen, earns high marks for user interface. The screen is readable, even in direct light.

The T1600's power management and battery use is also well designed. The on/off switch is recessed in the unit's back, where it can't be triggered accidentally. There is room for two slip-in battery cases at the front of the unit. Each weighs less than a pound and lasts two hours. Your portable computing time, then, is restricted only by the number of batteries you take along.

A removable, switchable screen allows the machine to be configured differently, and presumably upgraded as LCD technology is improved. The removable screen is also a convenient way to use the T1600 CPU in conjunction with a full-size monitor (EGA is contained on-board). And the machine's Auto Resume feature saves your work for you if the power is turned off; when you switch on again, you're in the same place.

The T1600 is full featured and impeccably designed, right down to little touches like a handle that doubles as a typing hand rest. Here, we have a mature product that minimizes the compromises battery-operated computing usually demands.

—CHARLES BERMANT

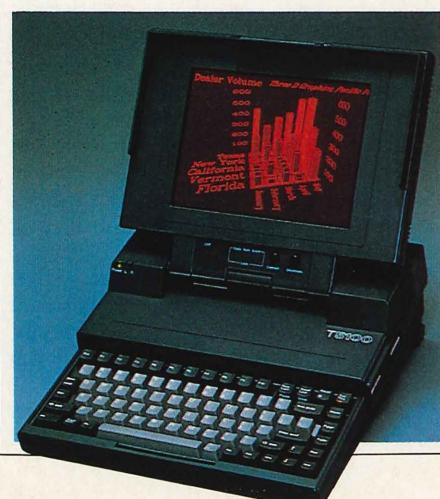
Toshiba T5100

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: \$7,199

Toshiba's T5100 defines the difference between a true laptop and a portable. Not only is it too heavy for your lap and too bulky for a coach-class tray table, it does not accommodate a battery.

Because of its clamshell design, however, it is considered a laptop. It's based on an Intel 80386 processor and boasts a crisp, readable gas plasma screen. It comes in a sturdy, gray plastic case that looks like it will take a licking (although at this price, you don't want to bang it around too much). Furthermore, its standard features include a 40MB hard disk and 2MB of RAM (expandable to 4MB). This is a welcome change



MANUFACTURERS
Compaq Computer Corp. (713) 370-0670;
Datavue (404) 564-5668; Epson America, Inc. (213) 539-9955; GRiD Systems Corp. (415) 656-4700; Mitsubishi Electronics America, Inc. (213) 515-3993; NEC Home Electronics (U.S.A.), Inc. (312) 860-9500; Sharp Electronics Corp. (201) 529-8200; Tandy Corp. (817) 390-3011; Toshiba America, Inc. (714) 583-3000; Zenith Data Systems (312) 699-4800

from machines—portables and others—that need to be upgraded as soon as you get them out of the box.

There is no wasted space on the keyboard. The standard letter keys are surrounded by function and other PC-specific keys, all packed into a minimal space. This layout takes some getting used to; you may have to search for specialty keys that are not in an obvious place (although for many text-based applications, you might not even need them). And the keyboard itself is most responsive and comfortable, without a hint of mushiness.

The parallel, serial, and RGB ports are situated behind the handle, which doubles as a stand. The monitor port can be used for EGA video, but there is a design flaw: The

Laptops boast fast microprocessors, superb VGA-driven screens, fast hard disks, modems, and long-life batteries. The bad news is that these features are rarely all available in the same machine.

nonremovable flip-up screen doesn't lean back far enough to allow the unit to slip under a shelf, so using this machine with an external monitor is uncomfortable and inconvenient.

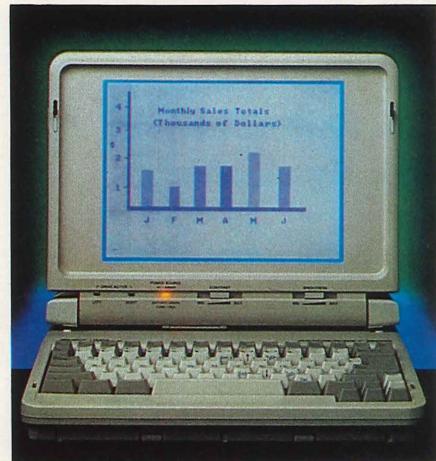
With all the noise about power and batteries, the plug-in-only nature of the T5100 may be perceived as a disadvantage. Surely, if there is one time where you need a battery unit and don't have one, it will be sorely missed. This machine is best suited for people who need powerful hardware and always have an electric socket nearby.

The T5100, however, is not just a portable. Its sleek design and wealth of features make it appropriate for standard desktop uses; and it is probably enough of a computer for anyone who doesn't absolutely require a color monitor. —CHARLES BERMANT

Zenith SupersPort 286 Model 20

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: \$5,599



Zenith's SupersPort 286 has so many positive attributes that it seems picky to complain about its few faults. Still, if the company can build a laptop computer this good, why didn't Zenith go all the way?

The screen/keyboard/CPU unit itself is an ideal laptop. At 10.5 pounds, it is not too painful to carry around (although not for 14 hours at a time), and it fits neatly on an airplane tray table.

The problem, however, is that in order to run without an outlet, the SupersPort needs a four-pound battery pack, which adds three inches to the length. Add the adapter to this, and the load is pushing 15 pounds.

At least the SupersPort 286 is worth carrying around. The adequately responsive keyboard is compact, but not crammed, and features a full-size return key. The backlit screen is a sharp, readable dark blue/light blue combination, but the cursor can be hard to spot in some applications. The screen tilts all the way back until it lies flat on the system unit, which makes it easy to hook up the machine to a larger monitor and use it without having to turn your head. Ingenious touches like this make SupersPort worth having and should be a part of every laptop.

The SupersPort has a number of utilities in ROM that allow you to conserve power and configure the unit; for example, you can set the time at which the hard-disk drive and screen will shut off.

Everything about this machine is well designed. It is a worthwhile investment today, although users might be better off with some future model that uses a smaller battery pack and adds some needed power features. On the other hand, you could wait forever for the perfect machine. —CHARLES BERMANT ■

Fax Boards: Do You Need One?

BY STEPHEN MILLER

Advantages and Disadvantages, Plus Reviews of Four Popular Models

For more and more home offices, the fax connection is fast becoming a necessity. No wonder the fax machine, like the computer and laser printer, is turning up as a staple in many home offices.

Although fax machines are easy to use and increasingly affordable, they have at least one drawback: paper. Any document you send must be on paper, and any fax you receive must be printed out. If the documents you send consist entirely of text and graphics generated on your computer, then a fax board may be a better solution.

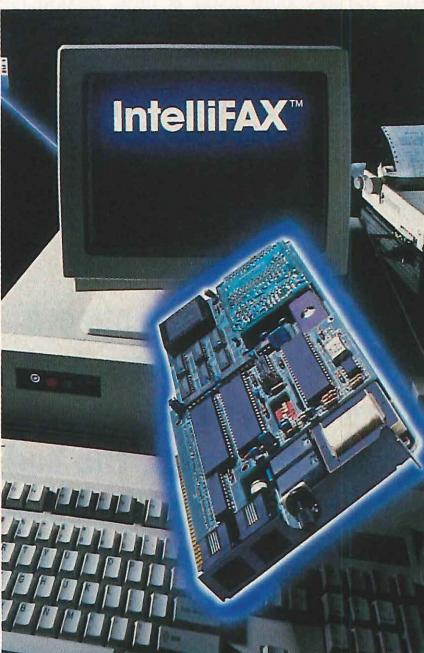
Fax boards are stripped-down facsimile machines that fit inside your computer. Because the text is already in electronic form, a scanner is unnecessary; and you probably already have a printer to produce hard copies of selected faxes you receive. Everything else you need is hidden inside your computer.

Fax boards help you cope with the growing problem of junk fax. A stand-alone fax machine has to print out every document sent to it. At about 10 cents a page just for paper, receiving solicitations for products and services you don't want can be expensive. A fax board can serve as a filter for unwanted material.

The software that drives most fax boards stores received faxes on your hard disk and lets you view them on screen. You choose which transmissions are important enough to print; the rest can be deleted into sales-pitch purgatory.

Most stand-alone fax machines use the thermal printing technique. Their print quality is usually acceptable, but not up to par with even a low-end dot-matrix printer. Also, thermal paper is more expensive than regular paper and, because of its chemical treatment, has a tendency to fade. With a fax board, the quality of a fax document depends on your printer. If you own a laser printer, the fax you receive can look nearly as good as the original.

Fax boards, however, are not for everyone. Their main advantage, the absence of a scanner, can also be a disadvantage. If you



The quality of the documents you receive through any fax board depends on your printer. Shown here is the Brother IntelliFAX.

want to send documents that did not originate on your computer, you'll need a separate scanner. At an average price of \$1,500 for a full-page scanner, the total price of your fax system will approach that of a stand-alone fax machine, and your savings will disappear. This setup is more versatile than a normal fax machine—a scanner can be used for desktop publishing. A scanner will also let you scan and send your letterhead and signature with your correspondence. However, it's considerably more complicated to use unless you're sending a document that's already in the computer.

REVIEWED IN THIS ISSUE

Fax Boards:

- Brother IntelliFAX
- GammaLink GammaFax CP
- Intel Connection CoProcessor
- Quadram JT Fax 9600

Removable Hard-Disk Drives:

- Plus Development Plus Passport
- Tandon Ad-PAC

Printer:

- Star Micronics NX-2400 Multi-Font

Telephone:

- Panasonic KX-T3880

USING A FAX BOARD

Stand-alone fax machines are relatively easy to use: Place the document in the feeder and dial the number of the receiving fax machine. Fax boards are more difficult to use because you must first install and run the software. Instead of placing the document in the feeder, you enter the name of the document and the number to dial. The fax board does the rest.

WHAT TO LOOK FOR IN A FAX BOARD

Most fax software is memory resident, or Terminate and Stay Resident (TSR), and supports background operation. This means you can send and receive faxes while working on other software. However, some fax-board software requires as much as 200K of RAM. With a 640K system, this doesn't leave enough room to run many of today's larger software packages, such as *WordPerfect* 5.0.

You should be aware that the fax software may conflict with your other software, TSR programs, or your hardware configuration; make sure you get a money-back guarantee in case of conflicts with your system. The software should be easy to use but powerful, and it should be able to send standard ASCII files as well as the major graphic formats such as PCX or TIFF. It's also helpful if the software can automatically translate your word processor's documents with the formatting intact.

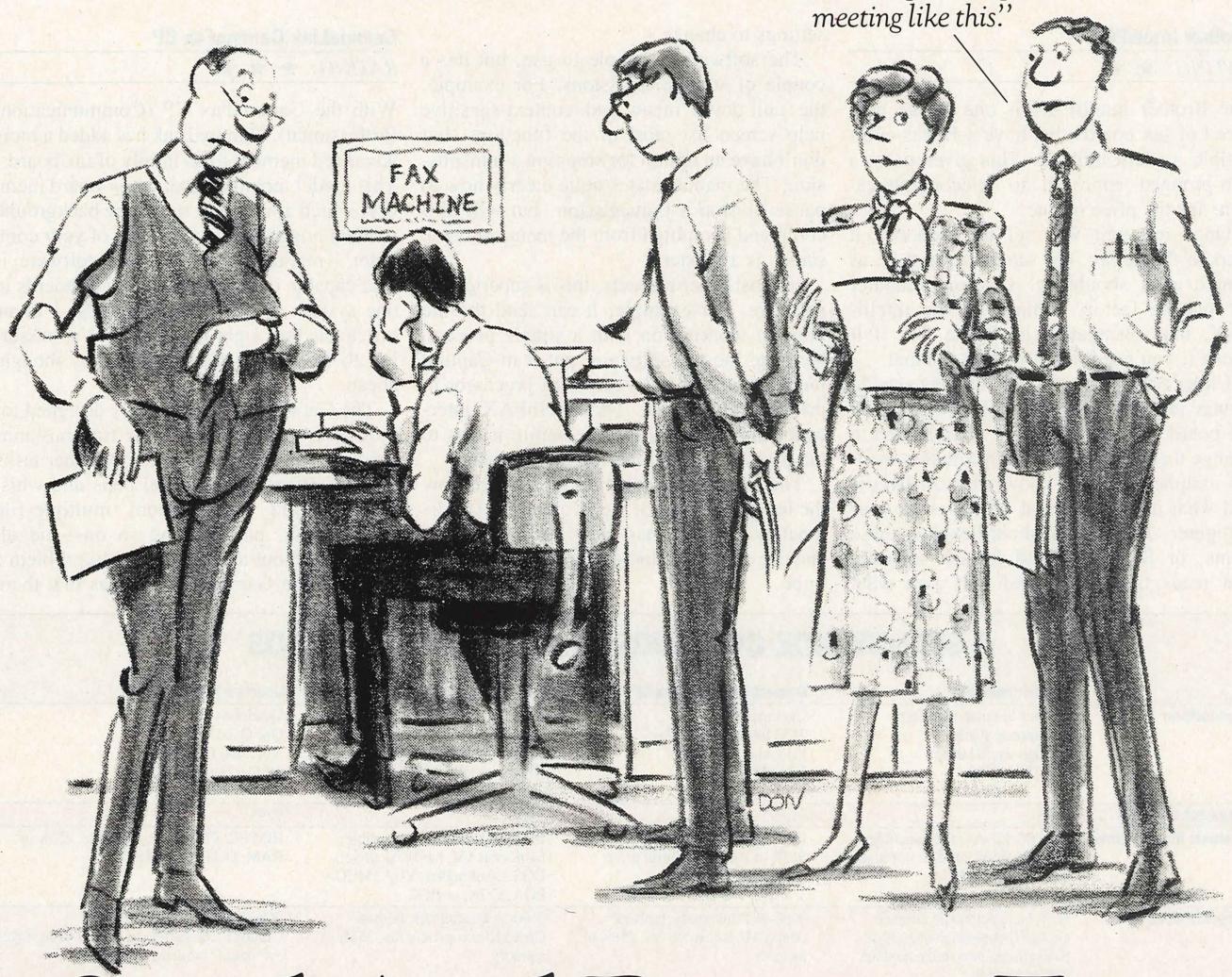
Besides basic sending and receiving, most fax boards can do anything a top-of-the-line fax machine can do: delayed transmissions, polling, broadcasting, and keeping a phone directory and complete activity log.

Although most fax boards can operate in the background, they may slow down your computer while sending or receiving. Some manufacturers decrease the slowdown by adding memory to their boards. This memory is used exclusively by the fax board, working independently of your computer.

If you own a small-footprint computer, saving slots can be a key consideration. Many fax boards have a modem option, which lets you use one board for all your communications needs.

Although fax boards have advantages over fax machines, they are not for everyone. If you think a fax board might meet your needs, the following reviews and chart can help you pick the right one.

(An additional fax board, The Complete Fax 9600, was reviewed in the April issue.)



Send And Receive Fax Right From Your PC

#1 **JT Fax**
*The Best Selling
PC Fax In
America*



From
\$295

JT Fax internal and portable 4800 baud models for PC/AT/XT and PS/2.
9600 baud board with optional modem daughter card.

Call to order the right JT Fax for you.

1·800·548·3420

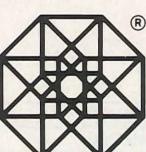
In Georgia: (404) 564-5566

Fax: (404) 564-5528

CIRCLE READER SERVICE 59

QUADRAM
An Intelligent Systems Company
One Quad Way, Norcross, Georgia 30093

Quadram logo and JT Fax are trademarks of Quadram



Brother IntelliFAX**RATING:** ★ ★

The Brother IntelliFAX is one of the new breed of fax boards that have a Hayes-compatible modem built in. This gives users a two-pronged approach to telecommunications for the price of one.

Once my unit was set up properly, it worked flawlessly; but setup may not be as simple as it should be. If your computer accepts the factory settings on the IntelliFAX, then installation is simple, but if it doesn't, you need help from the manual.

Under certain conditions, you may need to change jumper and/or DIP-switch settings on the board. It's not especially complicated to change the settings, but the installation manual assumes that you know what an IRQ is and what its hexadecimal setting is on your computer. The manual should explain these terms, or Brother should furnish software that reads the system and tells you what

settings to change.

The software is simple to use, but has a couple of strange omissions. For example, the pull-down menu and context-sensitive help screen list most of the functions, but don't have an option for stopping a transmission. The manual states quite clearly how to pause or stop a transmission, but why this command is omitted from the menu and help screen is a mystery.

In most other respects, this is superior fax software. For example, it can send the file you are working on with a simple process: Activate the fax software, put it in Capture mode, and then tell your word processor to print the document. The IntelliFAX intercepts and transmits the file before it gets to the printer, with all the formatting intact.

This is a good product for those who know the inner workings of their computer. Unfortunately, Brother has made the installation and use of the IntelliFAX harder than it needs to be.

GammaLink GammaFax CP**RATING:** ★ ★ ★

With the GammaFax CP (Communications Professional), GammaLink has added a more advanced member to its family of fax boards. This model includes separate on-board memory, which allows it to run in the background without hogging major portions of your computer's memory. The supplied software is also capable of running up to eight boards in one system. While I can't imagine a home office needing eight fax boards, it's reassuring to know that GammaLink has thought ahead.

The GammaFax CP is clearly designed for those who expect a lot of fax transmissions but have to use the computer for other tasks as well. It has all the usual bells and whistles—delayed transmission, multiple-file transmission, polling, and so on—and all worked without a hitch. The only problem I had with the GammaFax CP was that there

A SIDE-BY-SIDE COMPARISON OF FOUR FAX BOARDS

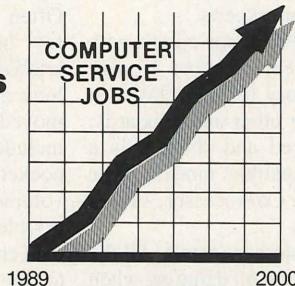
	Brother IntelliFAX	GammaLink GammaFax CP	Intel Connection CoProcessor	Quadram JT Fax 9600
Manufacturer	Brother International Corp. 8 Corporate Place Piscataway, NJ 08855 (201) 981-0300	GammaLink 2452 Embarcadero Way Palo Alto, CA 94303 (415) 856-7421	Intel Personal Computer Enhancement Operation 5200 N.E. Elam Young Pkwy. Hillsboro, OR 97124 (503) 629-7402	Quadram One Quad Way Norcross, GA 30093 (404) 923-6666
Suggested List Price	\$995	\$1,095	\$995	\$795
Hardware Requirements	IBM PC/XT/AT or compatible; 512K of RAM; DOS 2.1 or higher; VGA, EGA, or CGA	IBM PC/XT/AT or compatible; 512K of RAM; hard-disk drive; DOS 3.0 or higher ¹	IBM PC/XT/AT or compatible; 640K of RAM; hard-disk drive; DOS 3.0 or higher; VGA, MCGA, EGA, CGA, or HGC	IBM PC/XT/AT or compatible; 256K of RAM; DOS 2.1 or higher ¹
Hardware Included	9600-baud automatic fallback Group III compatible fax, 1200-baud Hayes-compatible modem, 64K of memory	9600-baud automatic fallback Group III compatible fax, 256K of memory	9600-baud automatic fallback Group III compatible fax, 256K of memory	9600-baud automatic fallback Group III compatible fax, 1200-baud Hayes-compatible modem, 64K of memory
Resolution	Standard (203-by-98) and fine (203-by-196)	Standard (203-by-98) and fine (203-by-196)	Standard (203-by-98) and fine (203-by-196)	Standard (203-by-98) and fine (203-by-196)
Features	Auto redial, background operation, broadcasting, delayed transmission, letterhead and signature, phone directory, transaction log, zoom editing	Background operation, broadcasting, dBase-like command language, letterhead and signature, phone directory, polling, tone/pulse dialing, transaction log	Background operation, broadcasting, delayed transmission, expanded memory management, letterhead and signature, phone directory, polling, tone/pulse dialing, transaction log	Auto print; background operation; broadcasting; compressed print; letterhead and signature; one-step convert and send; on-screen flip, reduce, and zoom; phone directory; scheduling; tone/pulse dialing; transaction log
Software Included	<i>Mirror II</i>	<i>GammaFax</i>	<i>Connect</i>	<i>JT Fax</i>
Memory Used by Software	150K	65K	up to 64K	190K
File Formats Supported	Standard Formats ASCII, CCITT, PCX, TIFF	ASCII, CUT, PCX, TIFF	ASCII, CCITT, PCX	ASCII, CCITT, PCX
Scanners	Canon IX-12, Chinon Desk-Scan 2000, Chinon N205, HP ScanJet, Princeton LS-300	Canon IX-12, HP ScanJet, JLaser	Canon IX-12, Datacopy 220/230, HP ScanJet, MicroTek MS300A	Canon IX-12, HP ScanJet, Princeton Graphics LS300
Application Packages	<i>dBase III</i> , <i>DisplayWrite 3 and 4</i> , <i>Lotus 1-2-3</i> , <i>Microsoft Word</i> , <i>Multimate</i> , <i>PC Paintbrush</i> , <i>PC Paintbrush Plus</i> , <i>PerfectWrite</i> , <i>Professional Editor</i> , <i>Publisher's Paintbrush</i> , <i>Sidekick</i> , <i>Symphony</i> , <i>WordPerfect 4.1</i> , <i>WordStar</i> , <i>WordStar Professional</i> , <i>XyWrite</i>	<i>WordStar</i>	<i>Lotus 1-2-3</i> , <i>Q&A</i> , <i>Sidekick Plus</i> , <i>WordPerfect v5.0</i>	<i>dBase III</i> , <i>DisplayWrite 3 and 4</i> , <i>Lotus 1-2-3</i> , <i>Microsoft Word</i> , <i>Multimate</i> , <i>PC Paintbrush</i> , <i>PC Paintbrush Plus</i> , <i>PerfectWrite</i> , <i>Professional Editor</i> , <i>Publisher's Paintbrush</i> , <i>Sidekick</i> , <i>Symphony</i> , <i>WordPerfect 4.1</i> , <i>WordStar</i> , <i>WordStar Professional</i>
Printers Supported	All popular dot-matrix and laser printers	Canon LBP-2, Epson, Fujitsu DL, HP LaserJet Plus/II, IBM, JLaser, NEC P6, Okidata, Toshiba P321, Xerox 4045	Apple LaserWriter, Epson FX and RX series, HP LaserJet series	Brother dot-matrix, Epson dot-matrix, HP LaserJet series, IBM Proprietary, Quadram QuadLaser
Options	None	2400-baud Hayes-compatible modem (Planned)	2400-baud Hayes-compatible modem (\$295)	None
Dimensions	PC 3/4 length (8.8-by-4 in.)	PC full length (13-by-4 in.)	PC full length (13-by-4 in.)	PC 3/4 length (8.8-by-4 in.)
Warranty (years)	One	One	Five	One

KEY: CCITT = standard file format for facsimiles; CUT = file format used with the Dr. HALO series. ¹Graphics adapter required to view faxes on screen.

5 sure steps to a fast start as a high-paid computer service technician

1. Choose training that's right for today's good jobs

Jobs for computer service technicians will almost double in the next 10 years, according to the latest Department of Labor projections. For you, that means unlimited opportunities for advancement, a new career, or even a computer service business of your own.



But to succeed in computer service today, you need training—complete, practical training that gives you the confidence to service any brand of computer. You need NRI training.

Only NRI—the leader in career-building, at-home electronics training for 75 years—gives you practical knowledge, hands-on skill, and real-world experience with a powerful XT-compatible computer you keep. Only NRI starts you with the basics, then builds your knowledge step by step until you have everything you need for a fast start as a high-paid computer service technician.



2. Go beyond "book learning" to get true hands- on experience

NRI knows you learn better by doing. So NRI training works overtime to give you that invaluable practical experience.

You first read about the subject, studying diagrams, schematics, and photos that make the subject even clearer. Then you do. You build, examine, remove, test, repair, replace. You discover for yourself the feel of the real thing, the confidence gained only with experience.

3. Get inside a powerful com- puter system

If you really want to get ahead in computer service, you have to get inside a state-of-the-art computer system. That's why NRI includes the powerful new Packard Bell VX88 computer as the centerpiece of your hands-on training.

As you build this fully IBM PC XT-compatible micro from the keyboard up, performing key tests and demonstrations at each stage of assembly, you actually see for yourself how every section of your computer works.

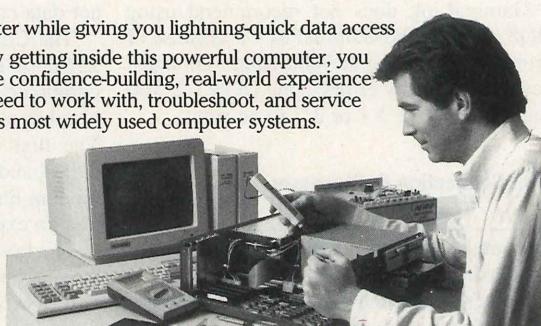
You assemble and test your computer's "intelligent" keyboard, install the power supply and 5 1/4" floppy disk drive, then interface the high-resolution monitor. But that's not all.

You go on to install a powerful 20 megabyte hard disk drive—today's most-wanted computer peripheral—included in your training to dramatically increase the data storage capacity of your



computer while giving you lightning-quick data access

By getting inside this powerful computer, you get the confidence-building, real-world experience you need to work with, troubleshoot, and service today's most widely used computer systems.



4. Make sure you've always got someone to turn to for help



Throughout your NRI training, you've got the full support of your personal NRI instructor and the entire NRI technical staff. Always ready to answer your questions and help you if you should hit a snag, your instructors will make you feel as if you're in a classroom of one, giving you as much time and personal attention as you need.

5. Step into a bright new future in computer service—start by sending for your FREE catalog today!

Discover for yourself how easy NRI makes it to succeed in computer service. Send today for NRI's big, 100-page, full-color catalog describing every aspect of NRI's one-of-a-kind computer training, as well as training in robotics, TV/video/audio servicing, electronic music technology, security electronics, and other growing high-tech career fields.

If the coupon is missing, write to: NRI School of Electronics, McGraw-Hill Continuing Education Center, 4401 Connecticut Avenue, NW, Washington, DC 20008. IBM is a registered trademark of International Business Machines Corp.



NRI **School of
Electronics**

McGraw-Hill Continuing Education Center
4401 Connecticut Avenue, NW, Washington, DC 20008



For career courses
approved under GI Bill
 check for details.

- CHECK ONE CATALOG ONLY**
 Computers and Microprocessors
 Robotics
 TV/Video/Audio Servicing
 Data Communications

- Security Electronics
 Electronic Music Technology
 Digital Electronics Servicing
 Computer Programming
 Basic Electronics

Name _____

Address _____

City _____ State _____ Zip _____

Accredited by the National Home Study Council

155-059

was no way, short of rebooting the computer, to turn off its answer mode. If you have only one phone line or need to use the phone to receive voice calls, there is no simple way to disable the answer mode and reactivate it later. If you expect a high volume of fax traffic, a dedicated line is in order.

GammaLink does not recommend using DOS 3.2 with the GammaFax CP because of problems operating at 9600 baud. Though I never ran into any errors using DOS 3.2, you should use DOS 3.1 or 3.3 to be sure.

Intel Connection CoProcessor

RATING: ★ ★ ★ ★

The Intel Connection CoProcessor is a radical departure from other fax boards. It is a computer designed to handle all of your communication needs, including fax, file transfer, electronic mail, and eventually voice mail.

While developing the Connection CoProcessor, the Intel Corporation decided that a standard was needed in order to make telecommunications easier for the user. Along with Digital Communications Associates, Intel developed the DCA/Intel Communicating Applications Specification (CAS).

The intent of CAS is that in the future you will be able to send whatever you want in any format to any other device at the other end of the telephone line, such as a modem or fax board, without knowing what the device is. If widely adopted, CAS will make telecommunications a breeze for those of us who are not data communications experts.

The Connection CoProcessor comes with 256K of RAM that frees up most of your computer's main memory for other tasks. It also has a connector for other option boards. The first one announced and shipped is a 2400-baud Hayes-compatible modem. The modem fits right on the CoProcessor, saving you an expansion slot.

The fax board is painless to install. All the manuals and disks can be a bit daunting when you first open the package, but the installation turns out to be a simple process of following the on-screen prompts. The software supports the usual fax options, plus a whole lot more. It is clear from the design of the Connection CoProcessor that Intel wants other hardware and software vendors to provide support for the CAS system.

As the use of computers, fax, and other communications devices spreads, the need grows for a standard for connecting them all together. The Intel Connection CoProcessor

provides a hardware platform that should be able to support such a standard. It should meet all of your fax-board needs.

Quadram JT Fax 9600

RATING: ★ ★ ★ ★

Often it's the little things that count. Most fax boards have fragile volume-control knobs that look as if they'll break off if you look at them the wrong way. Quadram removed the knob on its new JT Fax 9600 and included a tool (like a ballpoint pen with a pocket clip) that lets you adjust the recessed volume control. If a company went to the trouble of improving a minor detail like that, then chances are good that they paid attention to the major items also. Quadram did, and the board worked perfectly.

Quadram built the hardware, but Asher Technologies wrote the software. Asher also supplies the software for the Brother IntelliFAX, and both packages have many of the same shortcomings, though the JT manual explains how to resolve installation problems more clearly.

The JT line of fax boards has a deservedly good reputation, and the JT Fax 9600 is a solid fax board that continues the tradition. It merits strong consideration.

Two Removable Hard Disks, a 24-Pin Printer, and a Two-Line Cordless Phone

About Our Reviews and Ratings

Each month, HOME-OFFICE COMPUTING's Hardware Reviews take an in-depth look at new and worthwhile computers, peripherals, fax machines, copiers, phones, and other hardware.

Our reviewers set up the equipment in their own home offices. After heavy use and extensive testing, they rank each item on the basis of suitability for the home office and on overall value, taking into account performance, features, ease of setup, ease of learning and use, documentation, size, expandability/versatility, support, availability, warranty, and value for the money.

Then, the HOME-OFFICE COMPUTING Hardware Testing Lab conducts its own battery of tests (a printer speed test, for example) and verifies manufacturers' specifications. Finally, our technical editors weigh the reviewers' rankings, the lab test results, and

their own experience to determine an overall rating on a scale of zero to four stars:

○	Poor	★★★	Very Good
★	Average	★★★★	Excellent
★★	Good		

Note on Hardware Requirements:

Any product listed as requiring an IBM PC/XT/AT or compatible should also work with an IBM PS/2 Model 25, Model 30, or Model 30 286.

Data to Go

What's a removable hard-disk drive? It's a high-capacity drive with the convenience of a floppy disk; you can remove it and insert a new one when the disk is full. Don't confuse it with a Bernoulli Box (*reviewed in the January 1989 issue*), which is a removable

disk, not an entire disk drive. A removable hard disk costs a lot more than a floppy disk (it will even cost more than a conventional, or fixed, hard disk). It has a faster access speed (the time it takes a drive to locate information on a disk) than a floppy, and it can hold far more data. Removable hard disks combine the advantages of fixed hard disks—capacity, access speed, and reliability—with the portability and expansion capabilities of floppies.

One of the biggest problems with a fixed hard disk is that sooner or later you're going to run out of space for your data and programs. Applications can require 2MB of disk space or more. Xerox's *Ventura Publisher 2.0* (with the Professional Extension), for example, comes on a total of nineteen 5.25-inch floppy disks. A 20MB hard-disk drive used to be sufficient for holding all of your programs, but nowadays it's not uncommon for people with a multitude of programs to

**UPCOMING
FEATURES IN**

Home Office COMPUTING

JUNE 1989

50 Hottest Home-Based Franchises

Raising a Family While Growing a Business

Buyer's Guide to 386 Computers

Communications Software Reviews

JULY 1989

Selling Homes from Home: The Real-Estate Business

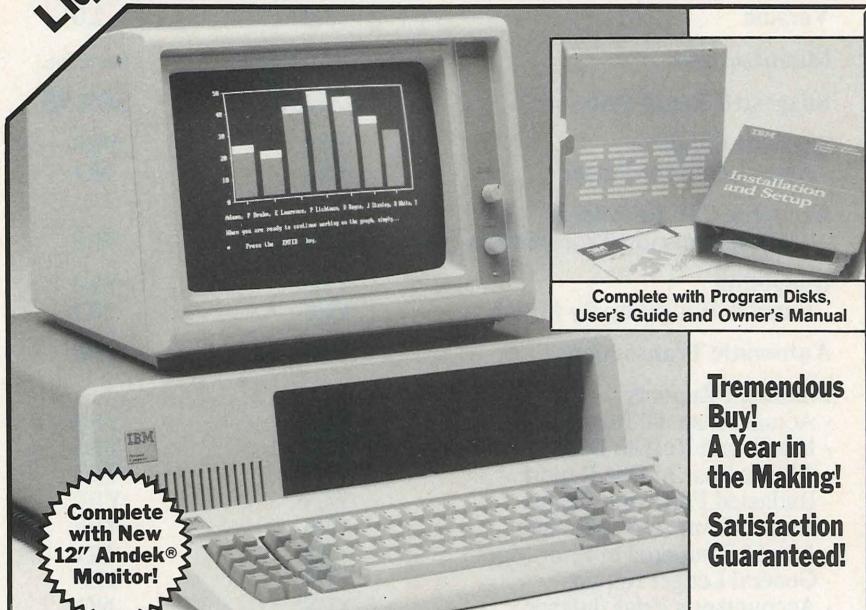
Reviews of the Two Latest Macs

How-To: Presentation Graphics

Buyer's Guide to VGA Monitors

**A Landmark
Liquidation!**

**IBM • The REAL Thing!
Genuine IBM Personal Computers
Now Under \$799!**



**Tremendous
Buy!
A Year in
the Making!**

**Satisfaction
Guaranteed!**

Not a Clone! This Is the Real Thing... IBM!

Where do all the used personal computers go when IBM introduces a new line? That's what C.O.M.B. liquidation buyers wanted to know. After nearly a year of searching, we finally found an independent refurbisher who renews, fully tests and repackages previously-owned PCs through a special agreement with IBM. The end product is AS GOOD AS NEW—in fact, companies like Kodak rely on remanufactured computer products, as reported in *Business Week* magazine.

Now, after months of negotiating, we're able to offer these remanufactured IBM PCs to you at a fraction of their original price!

The IBM Personal Computer Model 5150 is a versatile, general-purpose system that supports a wide range of applications for home, education or any size office environment. So popular in business...you're probably working with one of these PCs already. (If not, here's your chance!)

**1-Year Extended
Warranty Available.
Call for Details.**

Standard features of your IBM PC:

- Dual 5 1/4" 360K Disk Drives—Ready to Run Spreadsheets, Word Processing, Other Applications
- 256K Random Access Memory (Expandable to 640K w/ Optional Card)
- IBM 83-Key Keyboard
- 3 Expansion Slots
- Microprocessor: Intel 8088 (4.77 MHz Clock Speed)
- Operating System, Program Disk, Operator's Guide!
- New IBM-Compatible Monitor: 12" Diag., 720 x 350 Resolution, Nonglare Amber Display, 132 Characters/Line x 25 Lines. U.L. Listed. 6-Mo. Ltd. Factory Warranty.

Quantities are limited, so order NOW! Use your major credit card—our lines are open 24 hours a day, 7 days a week. Call toll-free 1-800-328-0609!

**Originally Made
To Sell For \$1825.00**
**You Pay Hundreds
Less At Only \$799**
Item H-4118-7523-301 S/H: \$49.00 ea.

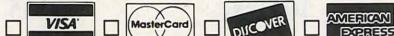
MAIL TO:

**COMB Authorized Liquidator
1405 Xenium Lane N/Minneapolis, MN 55441-4494**

Send IBM PC Computer(s) Item No. H-4118-7523-301 at \$799 each, plus \$49 each for shipping and handling. (MN residents add 6% sales tax, VA residents add 4.5% sales tax. Sorry, no C.O.D. orders.)

My check or money order is enclosed. (No delays in processing orders paid by check.)

PLEASE CHECK:



Acct. No. _____ Exp. / /

PLEASE PRINT CLEARLY:

Name _____

Address _____

City _____ State _____

Zip _____ Phone () _____

Signature _____

Call Toll-Free: 1-800-328-0609!

FROM PRICE TO PERFORMANCE, THERE'S NO COMPARISON ...

Version	MONEYCOUNTS† 5.0	QUICKEN† 2.0	MANAGING YOUR MONEY† 5.0	DOLLARS & SENSE† 3.1
Manufacturer	Parsons Technology	Intuit, Inc.	MECA Ventures, Inc.	Monogram Software, Inc.
Suggested Retail Price	\$29.00	\$49.95	\$219.98	\$179.95
Account Balancer	YES	YES	YES	YES
- Automatic Error Finder	YES	NO	NO	NO
Accounts Can Be Added When Entering Transactions (Data)	YES	YES	YES	NO
Budgeting	YES	YES	YES	YES
- Variable Budgeting By Month	YES	NO	YES	YES
Automatic Transactions	YES	YES	YES	YES
Financial Reports				
- Actual Financial Results	YES	YES	YES	YES
- Month and Year to Date	YES	YES	YES	YES
- All Months On One Report	YES	YES	YES	YES
- Budgeted Financial Results	YES	YES	YES	YES
- Actual Compared to Budget	YES	YES	YES	YES
- Actual Compared to Prior Month	YES	NO	NO	NO
- General Ledger Report	YES	YES	NO	NO
- Accountant's Trial Balance	YES	NO	NO	NO
- Net Worth Computation	YES	NO	YES	YES
Inquiry Reports				
- Check and or Deposit Register	YES	YES	YES	YES
- Account Analysis	YES	YES	YES	YES
- All Transactions with Party	YES	YES	YES	YES
- Cash Requirements Forecast	YES	YES	YES	YES
- Aged Invoices Payable	YES	NO	YES	YES
Graphics	YES	NO	YES	YES
Fiscal Year Support	YES	NO	YES	YES
Optional Password Protection	YES	NO	NO	YES
Financial Calculator	YES	NO	YES	YES
- Prints Amortization Schedules	YES	NO	YES	YES
- Prints Accumulation Schedules	YES	NO	YES	YES
Mail List Manager	YES	NO	YES	YES
- Prints Address Labels	YES	NO	YES	YES
- Prints Index Cards	YES	NO	YES	NO
- Prints Telephone Directory	YES	NO	YES	NO
- Mail Merge with Word Processor	YES	NO	YES	YES
Check Writer	YES	YES	YES	YES
- Prints Laser Checks	YES	YES	YES	NO
- Prints Any Pin-Feed Check	YES	NO	YES	YES
Personal Income Tax Estimator	YES	NO	YES	YES
Pop-up Note Pad	YES	NO	YES	YES
Pop-up Math Calculator	YES	NO	YES	YES
Capacity				
- Total Number of Accounts Per File	999	300	*	120
- Total Number of Open Transactions	100,000	65,535	*	4,000

*Varies based on RAM memory and disk space available.

†Trademarks of their respective manufacturers.

CIRCLE READER SERVICE 55

THE \$29 MONEY MANAGEMENT SOLUTION.

"An exceptional value."
Tom Badgett, PC Clones

MONEYCOUNTS® 5.0

"I was impressed.
It wins the cost-effective award."
John Dvorak, PC Magazine

"This is a great program: logical, easy
to learn, and fast and easy to use."
Lloyd Edwards, Palmetto PC Chronicles

"This program has all the features
and capabilities of money management
programs costing 10 times as much."

Leonard Hyre, PCM Magazine

GUARANTEED.

If you're looking for a complete money management/accounting program that offers outstanding value, we invite you to examine the evidence on MONEYCOUNTS. It's the clear choice for home and business.

MONEYCOUNTS is CPA designed, easy to use, menu-driven with on-line help, and requires no accounting experience. You'll appreciate the ease with which MONEYCOUNTS 5.0. . . .

- Manages your cash, checking, savings, & credit cards
- Prepares your budget
- Balances your checkbook
- Prints 5 types of financial statements (including net worth)
- Prints 6 types of inquiry reports
- Prints any type of pin-feed check & updates your records automatically
- Prints general ledger & accountant's trial balance
- Handles up to 999 accounts & 100,000 transactions a year with its fast financial data base
- Estimates your personal income tax
- Analyzes financing options & savings programs — computes interest rates & loan payments — prints amortization and accumulation schedules
- Manages mail lists — zip and alpha sorts — prints labels and index cards
- Displays and prints three-dimensional graphics — works with monochrome or color monitors
- Provides password protection, fiscal year support, pop-up notepad, and much more!

Hard to believe the low price? Don't worry! There's no catch. MONEYCOUNTS has a proven track record, has been on the market over four years, and is continuously receiving rave reviews. **If you're not 100% satisfied, return MONEYCOUNTS within 30 days for a full refund** (excluding shipping). Over 50,000 users have decided in favor of MONEYCOUNTS! Order today and judge for yourself!

For Same Day Shipping

VISA, MASTERCARD & C.O.D. ORDERS CALL

1-800-223-6925

(In Canada, call 319/395-7300)

Weekdays 8:30 a.m. to 9:00 p.m. CST

Saturdays 9:00 a.m. to 5:00 p.m.

Or send check or money order
payable to Parsons Technology.



MONEYCOUNTS®

Version 5.0

\$29 + \$5 shipping

NOT COPY PROTECTED
INCLUDES PRINTED MANUAL



Dept. H
375 Collins Road NE
Cedar Rapids, Iowa 52402

NAME _____

ADDRESS _____

CITY _____

STATE/ZIP _____ PHONE _____

CHECK MONEY ORDER VISA MASTERCARD

CARD # _____ EXP. DATE _____

MONEYCOUNTS 5.0 requires an IBM or compatible computer, 256K or more RAM, DOS 2.0 or higher, 2 disk drives (or a hard disk). Add \$5 shipping/handling — \$10 outside North America. Iowa residents, please add 4% sales tax.



375 Collins Road N.E.
Cedar Rapids, Iowa 52402

need 60MB. Removable hard-disk drives offer you unlimited storage capacity—pull the full hard disk out and pop in an empty one; however, each new disk will be costly.

A removable hard-disk drive comes in three parts: the hard-disk cartridge, which is actually a shock-mounted hard-disk drive secured in a rigid plastic enclosure (this allows the hard disk to put up with a lot of jostling); the receptacle into which the hard-disk cartridge is placed (this either is external or occupies the space of a full-height floppy-disk drive); and the controller card that plugs into a free slot in your computer and allows it to work with the removable hard-disk drive.

Removables won't replace the fixed drives on the market, but instead will complement them. They can be used as a backup system, as an additional hard-disk drive that never runs out of storage space (just keep replacing the hard-disk cartridges), as a safe and convenient way to transport data, and even for security purposes (removing and safeguarding the cartridge will prevent unauthorized access to important data).

The Plus Development Plus Passport and the Tandon Ad-PAC are two MS-DOS-compatible removable hard-disk drives. (Other companies manufacture similar drives for Macintosh computers.) They differ in price, speed, capacity, and size.

Plus Development Plus Passport

RATING: ★ ★ ★ ★

Plus Development's Plus Passport is feature-packed. It can be installed internally if there's a free full-height disk-drive bay in your system, or externally with an expansion box (\$399). Installing the drive externally was a bit of a hassle. However, Plus provides reasonably clear manuals with step-by-step instructions.

Although the included software provides a menu, there is no menu option for choosing a disk drive to boot from (the fixed hard disk,



the floppy disk, or the Passport). You'll have to adjust a switch located on the back of the removable hard disk to make this selection.

The Passport is more expensive than the Ad-PAC, but the extra money buys you a faster access speed (28 milliseconds). You also get a write-protect feature—just move a switch to prevent accidental overwriting of your data.

The removable hard-disk drive is about the size of a VHS videotape and should be placed in its special carrying case (included) when being transported.

Tandon Ad-PAC

RATING: ★ ★ ★ ★

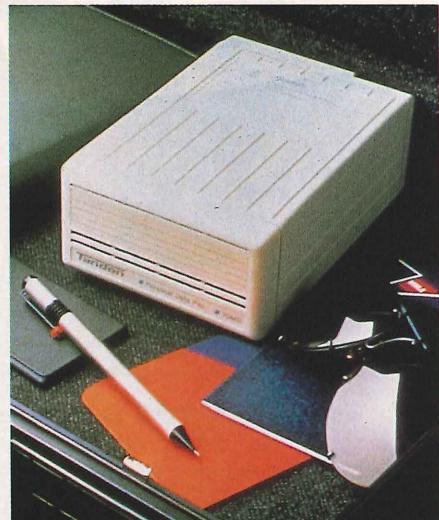
Tandon includes the Ad-PAC as standard equipment in its line of computers. Although its Data Pac drive (about the size of a fast-food hamburger container) only holds 30MB of data, Tandon will soon introduce a higher-capacity Data Pac, which will be compatible with the existing Ad-PAC receptacle.

Installation went without a hitch. After reading the hardware- and software-installation booklets, you should have the drive up

and running in about one hour. The clearly illustrated booklets are in step-by-step format.

The Ad-PAC (as opposed to the Plus Passport) can only be installed externally. This means you'll have to make room for it on your desktop. To add a second Ad-PAC to your system, just stack it on top of the existing one and connect them with a Dual Ad-PAC Adapter (\$499 for a second Ad-PAC receptacle, cable, and adapter). An additional interface card is not needed.

Each time you boot up your system with the Ad-PAC installed, it will take approxi-



mately 30 seconds longer than normal. Instead of a DOS prompt appearing on your screen, you'll see a menu. You can then choose which drive you'd like to boot from—the floppy-disk drive, the fixed hard-disk drive, or the Tandon Ad-PAC.

The Ad-PAC has the same access speed as the fixed hard-disk drive in my AT compatible (40 milliseconds)—not as fast as the Plus Passport, but it gets the job done.

—STEVEN C.M. CHEN

A SIDE-BY-SIDE COMPARISON OF TWO REMOVABLE HARD-DISK DRIVES

	Plus Passport	Tandon Ad-PAC
Company	Plus Development Corp. 1778 McCarthy Blvd. Milpitas, CA 95035 (800) 624-5545 (408) 434-6900	Tandon Corp. 301 Science Dr. Moorpark, CA 93021 (800) 556-1234, ext. 171 (800) 441-2345, ext. 171 in CA (805) 523-0340
Suggested Retail Price¹	\$1,254/\$1,454 (20MB/40MB) ²	\$998
Removable Media		
Capacity	20MB/40MB (\$595/\$795)	30MB (\$399)
Access Speed	28 milliseconds	40 milliseconds
Dimensions	4.8-by-7.7-by-1.3 inches ³	4.7-by-7.0-by-2.5 inches
Weight	2.4 lbs	2.6 lbs
Controller Card Dimensions	PC full length ⁴ (13-by-4 inches)	PC full length (13-by-4 inches)
Warranty (years)	One	One

¹Includes one receptacle, one interface card for PC or AT slot, and one hard-disk cartridge. ²Internal unit only; for external unit add \$399. ³6.5-by-9.5-by-2.3 inches and 3.4 pounds with carrying case.

⁴MCA version available for an additional \$100.

Near-Laser Quality for About \$500

Star Micronics NX-2400 Multi-Font

Star Micronics America, Inc., Suite 3510, 200 Park Ave., New York, NY 10166; (212) 986-6770

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: \$529

HARDWARE REQUIREMENTS: IBM PC/XT/AT or compatible with parallel port and cable

TYPE: 24-pin dot matrix

DRAFT SPEED (PICA): 142 characters per second (cps)

NEAR-LETTER-QUALITY SPEED (PICA): 47 cps

GRAPHICS RESOLUTION: 360-by-360 dots per inch

PAPER WIDTH: Continuous form: 4 to 10 inches; single sheet: 5.5 to 8.5 inches

BUILT-IN EMULATIONS: Epson LQ-800 and IBM Proprinter X-24

OPTIONS: Font cards (\$119 each)

DIMENSIONS: 16.1-by-12.9-by-4.7 inches

WARRANTY: One year

For eye-catching, crisp, professional print and a wide variety of fonts, a laser printer is the obvious choice; and there is really no alternative for applications like desktop publishing that demand high-quality output. But if you can't afford a laser, don't despair; you may not need one. In many cases, a 24-pin dot-matrix printer like the Star Micronics NX-2400 can produce type nearly as clear and impressive as that of a laser printer.

The NX-2400 prints at a reasonable and competitive speed. More important, its four resident fonts (along with three optional font cards) offer sharp output, making the NX-2400 suitable for many correspondence needs.

Although the NX-2400 occupies enough room to be considered a desk hog, it consumes significantly less space than a laser printer. The control panel is located on the front of the printer, making the style, pitch,



and paper-handling buttons easily accessible. For the most part, you can figure out how to use the printer without referring to the well-written manual.

The NX-2400 handles paper smoothly. Single sheets can be inserted through the platen or fed from an included detachable tray. There is also a paper-parking function, which makes it unnecessary to remove the continuous-form paper from the tractor feeder when you want to print a single sheet.

Unfortunately, the NX-2400 is loud and irritating. Not only is it impossible to carry on a telephone conversation while it's printing, but it's hard to concentrate. A mute button cuts down the clamor to a more reasonable level, but also reduces the printer's speed.

At \$529, the Star Micronics NX-2400 costs less than many other 24-pin dot-matrix printers (for example, Toshiba's ExpressWriter 311; \$589) and even some 9-pin models (such as IBM's Proprinter II; \$575). The combination of price, features, and performance makes the NX-2400 a laser-printer alternative worth considering.

—CHARLES BERMANT

Two Worlds Merge

Panasonic KX-T3880

Panasonic Co., One Panasonic Way, Secaucus, NJ 07094; (201) 348-7000

RATING: ★ ★ ★ ★

SUGGESTED RETAIL PRICE: \$200

TYPE: Two-line cordless speakerphone

MEMORY: 10 numbers (maximum of 16 digits each)

RANGE: 1,000 feet

FEATURES: Automatic security system, conference, flash, hold, intercom, mute, pause, redial, remote channel selection, separate ringer selectors, tone/pulse switch, volume control, wall mountable

DIMENSIONS: Base: 6.3-by-8.8-by-2.4 inches; handset: 2.4-by-2-by-8.2 inches

WARRANTY: One year

Two of the most popular kinds of telephone equipment for the home office are two-line telephones and cordless telephones. Panasonic is one of the few companies that have successfully merged these two technologies into one unit. The KX-T3880 gives users the best of both worlds: the convenience of two telephone lines and the freedom of movement offered by cordless phones. What's more, sound quality hasn't suffered by removal of the cord; within a reasonable distance of the base unit, the KX-T3880 sounds as clear as a telephone with a cord.

The KX-T3880 has everything an average two-line phone has, and much more. The special features I found most useful were speed dial, intercom, speakerphone, conference, the automatic security system, and the remote channel selector.

The KX-T3880 can store up to 10 automatic-dial numbers of up to 16 digits each. The auto-dial numbers can include pauses, so access numbers and authorization codes for long-distance services, such as MCI, can be programmed.

The base unit's speakerphone allows hands-free conversations. The intercom is also a welcome feature. Internal calls can be made between the base unit and the handset; the phone will still ring if a call comes through. The intercom also allows a type of conference call between a caller, a person near the base unit, and the person with the handset.

If you want to hold a conference call with two callers, you can do that too. All you need to do is put one call on hold, answer or make a call on the other line, and combine the calls with the conference button.

The final features of note are important if you live in an area where many cordless



phones are in use. The KX-T3880's automatic security system lets you choose one of 16 digital security codes, helping to avoid eavesdropping and unauthorized use by nearby cordless telephones that may be operating on the same frequency. The remote channel selector lets you choose the clearer of two channels while having a conversation.

Overall, the Panasonic KX-T3880 was a pleasure to use, and hard to give up once the review was finished.

—STEVE USDIN

UPDATE

The Saba Page Reader (reviewed in the March 1989 issue) is no longer available from Saba Technologies. The company has gone out of business.

BY MARIE ALVICH

Stop Destructive Dust. Rid your computer, printer, and other home-office equipment of dirt and dust with the *System Sweeper*. This AC-powered mini-vacuum has three special attachments—good for reaching hard-to-clean areas. \$40. From MicroComputer Accessories, Inc., 5405 Jandy Place, P.O. Box 66911, Los Angeles, CA 90066; (800) 521-5270. CIRCLE READER SERVICE 101



Erasable Disk Labels. Stick it on once, write on it for a lifetime. *Erase-a-Label* makes relabeling disks a breeze. Write with the special pen and erase with a bit of alcohol. Available for 3.5- and 5.25-inch floppy disks. \$5 for 20 labels and one pen. From Erase-a-Label, Inc., 13717 Welch Road, Dallas, TX 75244; (214) 387-9303.

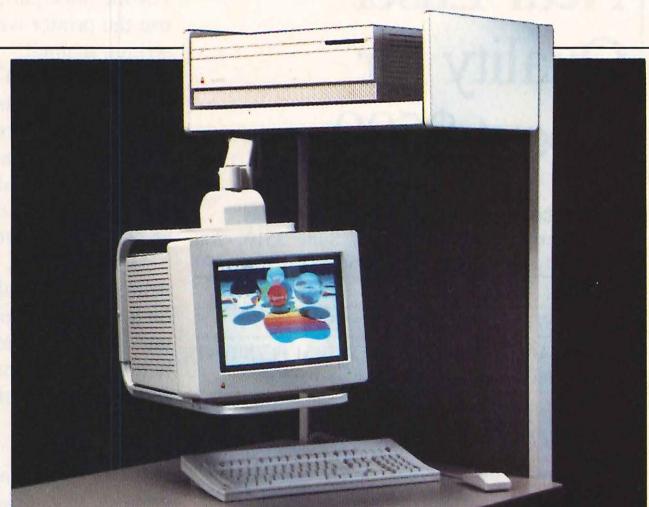
CIRCLE READER SERVICE 102



Colorful Computing. These vivid 3.5-inch, double-sided, double-density disks can help you develop a color-coded filing system for your data. *MFD-2DD* disks come in red, yellow, blue, green, and white. \$40 per 10-pack. From Sony Corporation of America, 9 W. 57th Street, New York, NY 10019; (212) 418-9427.

CIRCLE READER SERVICE 103

MARIE ALVICH is associate technical editor for HOME-OFFICE COMPUTING.



Mac II Workstation. The *Mac II Workstation* clears the most valuable space in your home office—your desk. The Macintosh processor sits on the workstation's shelf while the monitor is suspended over your desk by an adjustable arm. Several models are available for different-size monitors. \$500 to \$540. From Ergotron, Inc., 3450 Yankee Drive, Eagan, MN 55121; (800) 888-8458.

CIRCLE READER SERVICE 104



Avoid Downtime. This 52-Piece *Demagnetized Computer Tool Set* lets you repair, upgrade, and maintain your computer hardware. With it, you can do anything from adjusting a printer to installing a board. Set comes in a compact vinyl case. \$80. From Curtis Manufacturing Company, Inc., 30 Fitzgerald Drive, Jaffrey, NH 03452; (603) 532-4123.

CIRCLE READER SERVICE 105

Control Static Electricity. The antistatic *Lightning Rod Pad* guards your expensive equipment against static electricity by draining it away from equipment via a grounding wire. Available in five colors and seven sizes, it fits beneath computers, fax machines, and other equipment. \$11 to \$100. From Wave Pad, 1560 W. Winton Avenue, Hayward, CA 94545; (800) 345-9283.

CIRCLE READER SERVICE 106



Featuring *WordPerfect 5.0*— An Update of the Best-Selling MS-DOS Word Processor

Plus Five Timesaving MS-DOS Utilities

Our reviews of application software use shorthand to describe several of the details associated with any package. This is particularly true under "System Requirements"—where the minimum system configuration is noted—so we have provided the following table of computers for you to refer to as needed. Hardware, software, and memory are required unless noted as "recommended" or "optional." When more than one computer is listed under "System Requirements," the machine marked with an asterisk (*) is the type on which the software was reviewed. Requirements are *not* listed where obvious (for instance, printers with word processors or modems with communications programs). Operating system requirements, such as MS-DOS or the Macintosh System file, are listed only when they're not the standard, minimum requirement (DOS 2.0 for IBM PC or compatibles, System 3.2 for the Macintosh, or ProDOS for the Apple II). For those computer systems that can use both 5.25- and 3.5-inch disks (IBM PC and PS/2 or the Apple II), we've listed only those disk sizes that are either supplied with the software or available at no extra cost from the publisher. Since most productivity software is not copy protected, we have indicated—with the letters "CP"—only those programs that are copy protected. The version listed is the version reviewed; publishers may release subsequent versions at any time.

Designation Models

128K Apple	Ile/IIC/IIGS (in Ile/c mode) and compatibles
128Ke Apple	Ile (enhanced ROM)/IIC/IIGS(in Ile/c mode)
Apple IIGS	IIGS only
IBM PC, PS/2	PC/XT/AT, PS/2 and compatibles
128K Macintosh	128K/512K/512Ke/Plus/SE/II
512K Macintosh	512K/512Ke/Plus/SE/II
512Ke Macintosh	512Ke/Plus/SE/II
IMB Macintosh	Plus/SE/II

Ratings Key: ○ Poor; ★ Average; ★★ Good;
★★★ Very Good; ★★★★ Excellent



With WordPerfect, you can display text in on-screen columns in Preview mode—a feature not found in most word processors.

WordPerfect

VERSION REVIEWED: 5.0

SYSTEM REQUIREMENTS: 384K IBM PC or PS/2; two drives (hard-disk drive recommended); CGA, EGA, VGA, or Hercules for viewing graphics; DOS 2.1 or higher; 5.25- or 3.5-inch

PUBLISHER: WordPerfect Corp., 155 N. Technology Way, Orem, UT 84057; (801) 225-5000

PRICE: \$495

OVERALL PERFORMANCE: ★ ★ ★ ★

DOCUMENTATION: ★ ★

ERROR HANDLING: ★ ★ ★

EASE OF USE: ★ ★ ★

SUPPORT: ★ ★ ★ ★

You can create sophisticated documents using any number of word processors currently on the market, but the cutting-edge capabilities that get your work noticed are typically found in expensive desktop-publishing packages. With the release of version 5.0, *WordPerfect* has taken a substantial lead over all other IBM word processors; and with its many powerful, easy-to-use features, *WordPerfect* has begun to rival publishing-oriented software.

When it comes to the basics, the makers of this speedy market-leader know better than to tamper with success. The spelling checker and thesaurus are still first-rate, and the screen remains a blank working surface with only a single-line prompt at the bottom. Fea-

tures are accessed through combinations of the SHIFT, ALT, and CONTROL keys as well as the function keys. New users must spend their first several weeks squinting at the template, searching for keystroke combinations; but after frequent use, the everyday keystrokes become second nature. A bit of memorization is a small price to pay for a full-screen text area.

WordPerfect will automatically number footnotes and place them at the bottom of each page, or gather endnotes to print on a separate page. Footnotes are just one of several areas where the program—not you—pulls together information. You can mark text for incorporation in an index or table of contents quickly and easily. Similarly, you can insert cross-references in your text that will be updated with the current page number as you edit the document. No more thumbing through text trying to fill in the page numbers.

While indexing, you don't have to mark the text references one by one. If you prefer, you can create a separate document listing the words you want in the index. *WordPerfect* will then search your document and generate an index based on this list. You can also create a list of tables, illustrations, or maps in the same manner—an efficient solution to time-consuming tasks.

Another strong suit is the program's superb file-management system. By pressing F5, you reach the List Files screen, where options include listing the contents of different directories; loading, deleting, moving, copying, or renaming existing files; printing a file or reading its contents on-screen without loading it into the word processor; and searching for a particular word or phrase. The search capability is flexible—you can search file names, document summaries, the first page of documents, or the entire document text. The function can be defined to search for specific criteria such as file date or combinations of phrases (for example, find only documents with either the word *IBM* or *MS-DOS* or both *Home-Office Computing* and *word processing*).

WordPerfect excels at producing multiple-

column documents. You can display the text in on-screen columns while writing and editing, rare among word processors. The program's powerful command language has been enhanced for those interested in creating complex automated procedures or revising an existing macro rather than reentering the entire command string. Unfortunately, the generally adequate documentation does not successfully explain the macro language.

The most talked-about features of *WordPerfect* 5.0 are those that offer desktop-publishing capabilities. *WordPerfect* can now incorporate graphics from many sources into your documents. The list of supported graphic file formats is impressive, ranging from *AutoCAD*, *Harvard Graphics*, and *Lotus 1-2-3* to *PC Paintbrush* and *GEM Scan*. Virtually any application that produces standard Encapsulated PostScript (EPS) files can be read. Once imported, you can scale the image to the desired size or rotate object-oriented graphics.

WordPerfect's handling of typefaces and spacing is equally impressive. On-screen menus make it simple to choose any of the typefaces that your printer provides. You can also take advantage of kerning (the tightening of the space between certain pairs of letters such as AW and VO to produce a more pleasing visual effect) if your printer supports this feature. The free Bitstream *Fontware*, used to create different typefaces in a variety of sizes, is a valuable bonus for owners of a Hewlett-Packard LaserJet Plus or any PostScript laser printer.

Whether you're placing graphics or text, *WordPerfect* provides measurements in several units, including picas and points, and commands that allow you to specify precise placement on the page. The Preview mode lets you view a complete on-screen representation of the pages before you print, with graphics and typefaces sized and positioned accurately. You can't edit in this graphic Preview mode, but the screen redraws quickly enough to make hopping back and forth between the Edit and Preview modes a viable option.

To alleviate gridlock, WordPerfect Corporation recently divided support into several separate 800 numbers, each dealing with different types of questions. Also, they continue to run support forums on CompuServe and The Source. What more could you ask for?

If you are preparing relatively simple newsletters or advertising pieces with graphics and multiple columns, *WordPerfect* 5.0 can take the place of desktop-publishing software. Save hours by letting *WordPerfect* handle lists and cross-references. If the documents you create are fairly straightforward—basic correspondence or text—you will probably be satisfied with a word processor that is less powerful, less complex, and less expensive. However, for creating documents that

incorporate graphic elements, *WordPerfect* 5.0 is the premier program for MS-DOS computers.

—STEVE MORGENTERN

FullWrite Professional

VERSION REVIEWED: 1.0

SYSTEM REQUIREMENTS: 1MB Macintosh (2MB recommended); hard-disk drive; System 6.0 or higher

PUBLISHER: Ashton-Tate Corp., 20101 Hamilton Ave., Torrance, CA 90502; (213) 329-8000

PRICE: \$395

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★ ★ ★

ERROR HANDLING: ★ ★

EASE OF USE: ★ ★ ★

SUPPORT: ★ ★

For several years, Microsoft *Word* has been king of the full-featured Macintosh word processors. That's now changed with the release of two more heavy hitters—*WordPerfect Mac* and *FullWrite Professional*. The latter has a strong, built-in *MacDraw*-style graphics capability; you now have integrated writing and drawing in a single package.


Millennium Products, Inc.
 Annual Report

In 1987, Millennium Products Inc., increased sales by 77%, due to the introduction of new products and development by 23% and saw the price-to-earnings ratio of our stock increase by 54%. All in all, it was a good year.

1987 saw the introduction of 7 new major products and 23 minor ones. Among the major products introduced, the most popular one was the NoGrav™ anti-gravity pack. This device, which is a flight ring was also a very popular item and our distribution had a difficult time keeping up with keeping them in stock. Unfortunately, one of the major problems with the NoGrav™ machine™, a low-cost teleportation device had to be recalled due to safety problems with early production models. Although we've ear-marked

The following table illustrates the various cost-cutting measures and their respective savings:

Removal of lawns	\$3.7 million
Removal of buildings	\$17.2 million

Our facilities and operations manager, John Morris, has even better ideas for cost-cutting measures to be employed in 1988.

1987 was also a year of renewed competition from long-time competitors Archibald Laboratories and Allstar Technologies. Both companies announced competing products in the first half of 1988. Unfortunately, neither company didn't ship their product (an anti-gravity pack) until fourth quarter of 1988. Although we've ear-marked this not yet shipped their teleportation device. At most, we suffered a 15%

FullWrite Professional integrates a powerful word processor and drawing program into a single package.

The application itself consumes more than 1MB of RAM and keeps the current version of a document in memory. It can run on a 1MB machine, but tends to be painfully slow. Practical use dictates a 2MB Mac with a hard-disk drive, since the thesaurus, dictionary, and help files take up an additional 102K, 144K, and 302K of disk space, respectively.

These caveats aside, *FullWrite* performs well. With sufficient memory, the various functions do what they're intended to do. You can manipulate graphics and create multiple columns with text wrapping around graphics—features typically found in desktop-publishing programs. Other unique features include a bookmark to hold your place in a document, kerning, automatic file sav-

ing, and the linking of tables, graphs, and graphics to specific segments of text.

Of course, *FullWrite* has all the features one expects of a high-end word processor, such as automatic hyphenation and mail merge. It also has the capacity to search and change style attributes (changing 12-point bold to 14-point underline, for example) or import graphics in a variety of formats, including bit-mapped *MacPaint* and object-oriented PICT graphics.

The graphics mode is built around Bezier curve graphics. These are geometric curves that are defined by four points: beginning and ending points and two control points. An infinite variety of curves can be drawn and edited by moving the control points. Bezier curves are similar to the plastic French curves used in drafting and easily render high quality graphics.

The spelling checker detects words with transposed letters and suggests possible corrections. The thesaurus is an enhanced version of Microlytics's *Word Finder*. It's good, but *WordPerfect*'s thesaurus function is still the best. *FullWrite* also analyzes your document and tells you the number of characters, words, lines, and paragraphs, as well as the level of readability.

FullWrite lets you edit in the column mode, a definite advantage. Twelve styles of vertical column rules or lines can be added. Sidebars can have one of 24 different borders and four kinds of drop-shadow effects.

Despite the abundant features of *FullWrite*, it's easy to get up to speed. Clearly written and sufficiently illustrated reference and learning guides are included, and if that's not enough, extensive on-line help is available.

Ashton-Tate offers free telephone support for the first 90 days after purchase. Unfortunately, this number is also used for other products, so it's often busy, and you'll foot the phone bill. Support is good, however, and questions are answered quickly and correctly. Extended support, for up to 15 calls per year, is available for \$50 annually.

FullWrite is a powerhouse word processor complete with an integrated graphics program. If graphics are included in most of your documents, then *FullWrite* is for you. Remember, however, that it's a bulky program that won't easily fit into systems without a hard-disk drive or extra memory. If you have a Mac II or an SE/30 with at least 2MB and a hard-disk drive, consider *FullWrite Professional*; otherwise, *WordPerfect Mac* or *Word* would be a better choice, since it is easy enough to use a separate graphics program to create illustrations and diagrams and import them into either of these programs. After all, the Macintosh is designed to easily export graphics into other programs, including word-processing packages.

—ROGER HART

Ever Wonder Why Users Awarded Act 1 Accounting Software Best Buy for 3 Years Running?

Flexibility, Integrity & Upgradeability Reasons Why Act 1 is No. 1

... And three important reasons why users chose Act 1 as Best Buy for '86, '87, '88. The power of an accounting system is in its flexibility, integrity, and upgradeability. Act 1 has received a standing ovation for this.

Flexibility. Act 1 has it! ACT 1 (Accounting 1) gives the option of over 700 flexible management reports. Plus, financial reports can be formatted up to 250 ways.

Integrity. ACT 1 is second to none. It never posts out of balance and always prints an audit trail.

Upgradeability. Act 1 has it! When adding another terminal, it is essential the single-user software be upgradeable to multi-user with record and file lock. Many accounting softwares are dead-ended with no growth potential. Users know this is costly and dangerous to the integrity of a system. With Act 1, all data files are automatically upgradeable to ACT 2 (Accounting 2), which supports many popular LANS featuring time proven record and file lock for over six years.

Choose Act 1 for the best performance in accounting software.



General Features

- "LOOKUP" Windows throughout.
- Menu driven with 2 help references.
- Multi company and report generator.
- Sample data files included.
- Complete audit trail.
- All modules can post to multiple profit centers.
- Fully integrated with single source entry.
- Date sensitive user-defined fiscal calendar.
- User defined financial reports.
- User can design checks, invoices, statements & W-2's.
- User defined chart of accounts, account numbers & stock numbers up to 15 alphanumericics.

General Ledger

- Allows for multi company ledgers.
- Unlimited multi-level accounts for departmentalized reporting.
- Allows recurring journal entries.
- User can process transactions 2 periods into next year.
- Allows budgeting.

Inventory

- Supports LIFO, FIFO, weighted averages & standard cost.
- Supports markup, margin or list.
- Allows up to 4 places to right of decimal for unit cost & price.

Accounts Receivable

- Open invoice and/or balance forward.
- Allows unapplied payments.
- Prints statements.
- Handles recurring accounts receivable.
- Supports partial payments & finance charges.
- Allows unapplied credit memos.
- Up to 5 user-defined aging periods.
- Mailing labels & reports with 7 different sorts.

New Features Already Added in 1989

1. FAST INSTALL includes a departmentalized chart of accounts with financial reports showing percentage analysis.
2. A CASH FLOW REPORT as recommended by Certified Public Accountants.

Sales Invoicing

- Supports service or product oriented businesses.
- User defined tax tables including multiple sales taxes.
- Prints packing slips.
- Prints invoices.
- Alerts user to customer exceeding credit limit.
- Sales history reports.
- Automatic updating of inventory daily.
- Allows return credit memos.

Accounts Payable

- Can post to 200 general ledger expense accounts per invoice.
- Prints checks.
- Automatically prepares payments.
- Supports partial and handwritten checks.
- Processes credit and debit memos.
- Computes discounts and records discounts taken.

Payroll

- Generates automatic payroll.
- Provides up to 8 user-defined rates.
- Allows post facto payroll.
- Allows distribution of payroll expenses to user-defined departments.
- Benefits and deductions are calculated on fixed amounts.
- Hourly amounts, percentage of gross or variable.
- Allows additions to gross which may be taxable, nontaxable or partially taxed.
- Handles 401K & cafeteria.
- All tax tables easily updated by the user.
- Handles payroll draws, per diem pay, contract & piece work, hourly and salary.
- Handles tip accounting.
- Prints checks and W-2's.

Hardware Requirements

- IBM PC* or compatible.
- Hard disk required.

Unconditional 30 Day Money Back Guarantee (from date of invoice)

applicable on all products bought directly from COUGAR MOUNTAIN SOFTWARE. Products must be returned in resalable condition. Restocking 15% fee applicable.

To Order Call
(800) 344-2540

8:00-5:00 MST
 Monday-Friday
 Technical support is available via our Toll-Free Telephone Number.
 Training seminars available.

A Wealth of Knowledge.



We have designed a Personal Information Manager with useful billing features.

It is easy to use and custom-made for busy professionals who deal with a variety of people and organizations.

The **REGISTER Program** combines the features of a contact manager, accounts receivable, and mailing list manager into one compact program.

Regarding Contact Management:

- Extensive data maintained on each entry, plus relationship links to other entries.
- Space for up to 1,000 lines of comments for each entry.
- Each entry can be categorized with multiple attribute flags and selected using Boolean logic.
- Duplicate entry catching.
- Hyperlinks to related entries.
- Global data change capabilities (with a handy "if...then..." feature).
- Sophisticated search capabilities including search of comments.
- Extensive sorting capabilities.
- Many print options including mailing labels and pocket address books.

Regarding Billing:

- Quick and easy recording of Time Slips, Charges and Credits with an Action Code and Remarks.
- Import/Export Lotus 1-2-3 files.
- Options include minimum payments and penalty for overdue accounts.
- Generates Invoices, Client Balance Reports, Fees Received Reports, Overdue Balance Reports, and more.

Available for IBM PC's or compatibles.
512 Kb RAM minimum. EMS supported.

The REGISTER Program



\$79.95

+ \$2.50 s/h



1-800-548-7465

Information: (206) 226-0781

Applied Computing Services

14410 SE Petrovitsky, Suite 203, Renton, WA 98058

SOFTWARE REVIEWS

T/Master

VERSION REVIEWED: 1.72

SYSTEM REQUIREMENTS: 384K IBM PC or PS/2; two drives; 5.25- or 3.5-inch

PUBLISHER: T/Maker Research Co., 812 Pollard Rd., Suite 8, Los Gatos, CA 95030; (408) 866-0127

PRICE: \$139

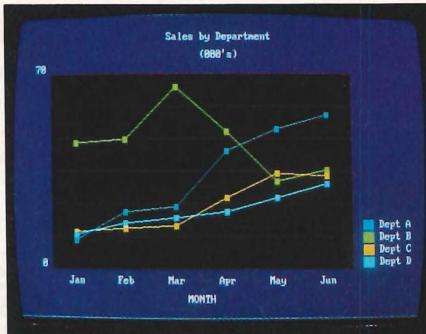
OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ○

ERROR HANDLING: ★ ★ ★

EASE OF USE: ★ ★ ★

SUPPORT: ★ ★ ★ ★



You can turn any numerical table into one of several types of charts or graphs with T/Master.

T/Master is a clever but quirky program that integrates a word processor, database, spreadsheet, business graphics, and telecommunications package. It can be thought of as an intelligent chalkboard—extremely adaptable and customizable. If you're content with your current spreadsheet, discrete word processor, or integrated package, then there's no reason to read on. But if you've been thinking about switching from a single-function program to an integrated package, **T/Master** has a lot to offer.

At first glance, the word processor looks a bit skimpy. It certainly doesn't match *WordPerfect* in wealth of features. Yet it can do virtually everything important that *WordPerfect* can do—and a whole lot more.

A four-command spelling checker proofs (checks the file and prepares a list of unfamiliar words), corrects (lets you correct misspelled words), amends (lets you add or delete words from the dictionary), and spells (finds the correct spelling in the dictionary). The spelling checker also gives a profile of your text file, including total number of words, unique words, unfamiliar words, average number of words per sentence, and average length of words.

With the Scratchpad and Compute features, you can perform simple calculations, Boolean arithmetic, complex math, and financial calculations while in the word processor. In fact, calculations done in one subprogram can be transferred to any other.

T/Master is so tightly integrated that its

separate modules might be thought of as overlapping transparencies forming a single complex picture. Thus, a spreadsheet in **T/Master** is really an ordinary word-processing file with a defined math space in which you have included rows and columns of numerical information requiring calculation.

The database-setup form is used not only for word processing, but for database development and spreadsheet design. The forms can be customized since they themselves are products of the database, or you can create your own from scratch.

The **T/Master** database, like everything else in the program, is done in ordinary text. This makes the program highly integrated, but limits the database's capabilities. So, although it's useful for some office applications, don't expect to use **T/Master** for the kind of heavy-duty work you can do with the big databases. Also, database files larger than 200K are not recommended since operations become too slow.

Because the program is table oriented, most data is presented in rows and columns (as opposed to the cells of most other spreadsheets). So what you see in the spreadsheet is not your standard Lotus 1-2-3 block of cells defined by a top and left border, but a layout you set up to suit your own needs—the program doesn't force you into the cell mentality.

Any numerical table can instantly be turned into one of several kinds of charts or graphs: pie, bar, line, and so on. These displays can be previewed in a rough display or shown as they will be printed. The **T/Master** graph system is simple: Select the block of data to be graphed, hit the graph-making keys, and there's the graph. Text, colors, shading, and scaling can be easily added or changed. Graphs can be printed separately or as part of a document.

The telecommunications package offers more than your basic Hayes-compatible command set: It enables you to exchange files, write your own scripts, and even set up your own bulletin-board system. Combined with the other subprograms, it becomes a powerful tool.

Learning how to use all of the subprograms efficiently is time-consuming. The nine-booklet manual does not make the process any faster. To compound the problem, **T/Master** is often cumbersome (requiring that you define a block and then delete it to clear the screen) and counterintuitive (CTRL END moves the cursor to the preceding word), which shines more light on the insufficient documentation. Fortunately, there are plenty of help screens along the way.

Several anonymous calls to T/Maker resulted in helpful general information, and I found a special telephone number for more detailed technical guidance. For \$15 a year you can join T/MUG (**T/Master** Users'

Group) and get a quarterly newsletter devoted to *T/Master* applications. This newsletter has been in continuous publication since 1982, so *T/Master* must have a loyal following.

The very qualities that make *T/Master* appealing also make it difficult to master, a condition not assuaged by the poor documentation. There's so much in the program—and the explanations are so scattered about and often so limited—that you're sure to turn blue in the face until things fall into place. However, once you do get a handle on *T/Master*, you'll become addicted. If you were previously using one of the traditional integrated programs, you're not likely to go back to it.

Keep in mind that neither the database nor the spreadsheet functions are meant for large operations. You can make do, but if you want to generate megabyte files, forget *T/Master*.

The big plus of *T/Master* is its diversity. It does just about everything you'd expect good integrated software to do, and most of it quite well. Its tight integration and malleability are advantages. There are a lot of features here for \$139—so much that an adequate description would fill a book.

—HENRY F. BEECHHOLD

Canvas

VERSION REVIEWED: 2.0

SYSTEM REQUIREMENTS: 1MB Macintosh; two drives (hard-disk drive recommended)

PUBLISHER: Deneba Software, 3305 N.W. 74th Ave., Miami, FL 33122; (305) 594-6965

PRICE: \$300

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★ ★ ★

ERROR HANDLING: ★ ★ ★

EASE OF USE: ★ ★

SUPPORT: ★ ★ ★

It would be presumptuous to say that *Canvas* 2.0 has everything you could ever want in a Macintosh graphics program, but its features are very impressive, especially if you have a Mac II with color capabilities.

Canvas is both a paint and draw program, so you get the freehand flexibility of *MacPaint* with the pin-point precision of *MacDraw*. The graphics, based on Bezier curves, are similar to the methods used by Adobe *Illustrator* and Aldus *FreeHand*. All three programs can smooth complex polygons to create complicated objects. You see examples of this every day in newspapers, such as *USA Today*, which make drawings with polygons and then smooth them into the final shapes required for the drawing.

Canvas comes in two forms: a stand-alone



Canvas allows you to create and print color graphics with a color or monochrome monitor.

program and a handy desk accessory (DA). The latter lacks a few of the extras present in the stand-alone, but for only 258K of memory, it can be useful and convenient for all but the most demanding artists. It's easy to add graphics to a word-processing document by invoking *Canvas* DA from the Apple menu, creating your masterpiece, copying it, and then pasting it directly into your word-processing software. You'll find yourself using this feature often.

Precision is one of *Canvas*'s strong points. You can accurately align objects top-to-top, bottom-to-bottom, on center, or to a specific point. Alignment is aided by the use of peel-away rulers that can be placed next to objects. The ability to display the area, perimeter, width, height, and degree of rotation of any selected object also comes in handy. Objects are moved by entering new location values from the keyboard; scaling is controlled precisely using percentages or ratios.

I found several features in *Canvas* especially intriguing. For example, the Auto-Trace feature will convert bit-mapped images into an outline composed of object-oriented lines and curves. These can then be ungrouped and each separate element worked with individually. In addition, object drawings from *MacDraw* and similar programs can be converted into bit-mapped style. *Canvas* even lets you set the resolution of the newly formed bit-mapped image to up to 2,540 dpi. Now you can proceed to work on it with any of the paint tools.

The Object Manager, a dialog box that gives you complete control over any selected object, is another useful and rather unusual feature. It displays the object's type (for example, curve, line, or box); its resolution (if it's a bit map); its border, pen and fill patterns; foreground and background colors; and a complete readout of dimensions including height, width, area, perimeter, and the degree of rotation. You can change an object simply by entering a new value.

Drawings can be up to 81 square feet and contain bit maps from 72 to 2,540 dpi. Each of the painting and drawing tools delivers a variety of options. For example, the spray-

California FREEWARE

Public Domain Software and Shareware for IBM™ and Compatibles. DOS™ 2.1 or higher.

Only \$2.99 per Disk!

BUSINESS

- EZ-FORMS Rev. D15 (66) - Menu-driven forms generator, misc. skeleton forms.
- MANAGING PEOPLE (643) - Various programs to improve management skills.
- FAST BUCKS V4.07(864 & 865)-(2 disk set) Menu-driven home finance package. **NEW**.
- IN CONTROL V2.702 (174 & 175) - (2 disk set) Prospect/client/customer tracking system. **NEW**.
- EASY PROJECT V3.1 (440) - Complete project mgmt. system, 1000 tasks, 100 sub-tasks.
- PAINLESS ACCOUNTING VC2.50 (774-776) - (3 disk set) Menu-driven accounting package.

DATABASE / EDUCATION

- FILE EXPRESS V4.2B (33 & 34) - (2 disk set) Menu-driven database; report generator. **NEW**.
- WAMPUM V3.3S (37) - Menu-driven dBase III clone. Knowledge of dBase suggested.
- FUNNELS & BUCKETS V2.0 (130) - Great learning game; add, subtract, etc. Ages 5-10. CGA
- PLAY 'N LEARN V2.01 (624) - Contains 7 games for kids up to 6 years old. CGA req.

GAMES / GRAPHICS / NOVELTY

- MONOPOLY V6.7 (106) - Just like the board game, 2 to 4 players. CGA required.
- 3-D CHESS V1.01 (215) - Excellent chess game. 2-D & 3-D. CGA or monochrome req.
- CAPTAIN COMIC Rev. 3 (755) - Arcade style adventure game, super graphics. EGA req. **NEW**.
- PRINTMASTER GRAPHICS (319, 549 & 550) - (3 disk set) Over 440 misc. graphics for Printmaster/Plus. Requires Printmaster or Plus. **For Printshop Graphics - Order disks # 320, 589, 590**
- PC DRAFT II V3.20 (629) - A painting/drafting program for desktop publishing. CGA required
- CHARTS UNLIMITED (812) - Integrates graphics & text into one system; 256K, CGA.
- PC LOTTO (651) - Play almost any lottery.
- DIET DISK (566) - Lose those unwanted lbs.

PRINTER UTILITIES / UTILITIES

- LQ V2.32 (509) - Produces quality text on dot matrix printers. Multiple fonts, print spooler.
- ON-SIDE V1.01 (560) - A sideways printing program, up to 175 multiple fonts, Great III
- GAME UTILITIES (220) - Great for most programs that need color (CGA) to run.
- DOS TUTORIAL V4.4 (256) - Menu-driven tutorial, teaches DOS commands, etc.
- PC-DESKTEAM V2.01 (278) - Sidekick like utility plus more features.
- FLU-SHOT PLUS V1.4 (541) - Various programs to protect against "trojan horses" & the "virus".

SPREADSHEET / WORD PROCESSING

- LOTUS LEARNING SYSTEM V2.4 (769 & 770) - (2 disk set) Explanations, illustrations, & practice sessions. Tutor Does NOT require Lotus.
- QUBECALC V3.02 (591) - A 3-D spreadsheet program, import Lotus files.
- GALAXY V2.42 (11) - Easy to use word processor; menus & quick keyboard commands.
- PC-WRITE V3.02 (784-786) - (3 disk set) Full featured word processor. **NEW**.

NEW PROGRAMS

- WORDPERFECT LEARNING SYSTEM (866 & 867) - (2 disk set) A tutorial for learning how to use Wordperfect Ver.5.0. Order disk #868 & 869 for Wordperfect Ver.4.2. 512K. **NEW**.
- VENTURA DESKTOP UTILITIES (886) - Six great utilities for Xerox Ventura Publisher.
- MAXI-READ V2.8 (878) - Writing analysis with scales.
- NEW YORK EDIT V2.10 (860) - A powerful programmer's text editor.

Send check or money Order to:

California FREEWARE

1466 Springline Dr. Palmdale, CA 93550

**Order TOLL FREE 1(800) 359 - 2189
(805) 273 - 0300**

Multiple sets of 5.25" disks @ \$2.99 Ea. 3.5" disks

@ \$3.99 Ea. Plus \$3.00 shipping C.A. Res. add 6.5% Sales tax.

ORDER DESK : 7am - 7pm PST M - F

CUSTOMER SERVICE : 11 am - 4 pm PST M - F

Call for a **FREE** catalog.

We accept MC/VISA HOC 5/89

CIRCLE READER SERVICE 32

nozzle pattern and flow rate can be changed, and you can zoom in or out from 3 percent up to 3,200 percent of the image. Features such as line weight, corner roundness, and arrowhead shape can be altered on circles, ovals, boxes, lines, and arrows.

There are also many options for text. Point size ranges from 6 to 127, but that's hardly all. You can then specify any pen pattern, color, or gray scale for individual letters of text, in addition to placing a background pattern, color, or gray scale. If that's not enough, you can stretch, distort, rotate, skew, or create perspective with the text.

Learning to use *Canvas* 2.0 is relatively

easy and is aided by an on-line help file and two manuals: a reference covering each menu command and a user guide that takes you through all the various features, with examples. Deneba Software's technical support is also helpful. Calls are toll free, and registered users receive help for as long as they own the product. Learning is also aided by the extensive Undo capability that allows you to reverse any change until you've completed the next operation.

Is there anything wrong with *Canvas* 2.0? Well, not if you have a color Mac II system. But, if your Mac lacks color capability, you may be somewhat put off by the price

(\$300). Perhaps Deneba Software should have kept *Canvas* 1.0 (\$195) on the market.

The flexibility built into *Canvas* 2.0 should cover just about any circumstance. On a Mac Plus, SE, or Mac II, *Canvas* lets you create illustrations in black and white or in eight colors. Without a color monitor, of course, you don't see the colors, but you can print them with the proper output device. A Mac II with 2MB of video-card RAM will give you 256 colors and the ability to switch between color palettes, thus greatly expanding the range of hues. With this system, *Canvas* 2.0 is a good value.

—ROGER HART

SOFTWARE QUICK TAKES

TITLE/PUBLISHER PRICE/VERSION	SUMMARY	SYSTEM REQUIREMENTS	RATINGS				
			O	D	EH	EU	S
HelpMe California Software Products, Inc. 525 N. Cabrillo Park Dr. Santa Ana, CA 92701 (714) 973-0440 \$99 v1.0	Is your hard disk functioning at its maximum potential? This diagnostic utility will inform you of fragmented files and remind you when it's time to make a backup. Not limited to hard-disk behavior, this electronic shrink will also tell you how much of a computer's memory is currently in use and how fast the CPU is operating. With its many tests and features, <i>HelpMe</i> freed 2.5MB of disk space on what I thought was a clean 20MB hard drive.	256K IBM PC, PS/2. Hard-disk drive recommended. 5.25- or 3.5-inch.	★	★	★	★	★
	—Tan A. Summers		★	★	★	★	★
Norton Commander Peter Norton Computing, Inc. 100 Wilshire Blvd. Santa Monica, CA 90401 (213) 319-2000 \$89 v2.0	New and improved version of the best-selling DOS shell that goes far beyond the mere listing of file names and directory trees. Advanced features include the ability to view text, Lotus 1-2-3, and dBase files without entering the program, and the creation of pop-up menus that let you run any program using a point-and-shoot method—eliminating the need for batch files. Many other features included, some more useful than others.	128K IBM PC, PS/2. 5.25- or 3.5-inch.	★	★	★	★	★
	—Pasquale M. Cirullo		★	★	★	★	★
OPTune Gazelle Systems, Inc. 42 N. University Ave. #10 Provo, UT 84601 (801) 377-1288 \$100 v1.0	This menu-driven utility is designed to optimize your hard disk by reorganizing directory entries and eliminating file fragmentation. It can also tune up the hard disk by testing the interleave (file distribution) factor and performing nondestructive low-level reformatting (when needed). <i>OPTune</i> is a snap to use and one of the fastest optimizers around.	256K IBM PC, PS/2. Hard-disk drive recommended. 5.25- or 3.5-inch.	★	★	★	★	★
	—Henry F. Beechhold		★	★	★	★	★
The Program Director Power Up! Software Corp. 2929 Campus Dr. San Mateo, CA 94403 (415) 345-5900 \$60 v1.0	Create a menu for your hard-disk drive (with optional passwords) that makes it easy to run up to 256 applications. Saves you from remembering, or even knowing about, long DOS path names. Inadequate documentation made it hard to install, but help from the publisher got me through.	128K IBM PC, PS/2. Hard-disk drive. 5.25- or 3.5-inch.	★	★	★	★	★
	—Lisa Kleinholtz		★	★	★	★	★
Tree86 The Aldridge Company 2500 City West Blvd. #575 Houston, TX 77042 (713) 953-1940 \$90 v2.0	Reduce DOS anxiety with this shell that strikes the proper balance between ease and functionality. Perform Copy, Delete, and other DOS functions through the utilities submenu or execute a file merely by moving the cursor and pressing RETURN. The wide range of features coupled with mouse support and automatic use of expanded memory make this one of the more attractive DOS shells.	256K IBM PC, PS/2. DOS 3.0 or higher recommended. Mouse optional. 5.25- and 3.5-inch.	★	★	★	★	★
	—Henry F. Beechhold		★	★	★	★	★

Ratings Key: **O** Overall Performance; **D** Documentation; **EH** Error Handling; **EU** Ease of Use; **S** Support; **○** Poor; **★** Average; **★★** Good; **★★★** Very Good;
★★★★ Excellent

PC Software as low as \$249

Thousands of IBM/Compatible Public Domain and Shareware Programs Are Available from the Micro Star Library and at Incredibly Low Prices!

We feature the best and most up-to-date shareware available.
Our software is guaranteed against bugs, defects, viruses, etc.

And We Offer FREE Technical Support For Our Customers

ORDER TODAY on our TOLL FREE PHONE LINES • ORDERS SHIPPED OUT SAME OR NEXT DAY

GAMES

ARCADE GAMES (106) Has Kong, 3-D Pacman, Bricks, Pang. (Requires color.)

BASIC GAMES (107) Pacman, Lunar Lander, Star Trek, Meteor, Breakout, and others.

CARD GAMES (109) Canasta, hearts, draw poker & bridge.

STRIKER (110) Defender-like game, "Top Gun" in space.

FIGHTMARE (112) Futuristic fighter pilot game. (Requires color graphics adapter.)

SLEUTH (117) Who done it?

DND (119) Like Dungeon and Dragons.

ROUND 42 (120) Better than Space Invaders. 42 levels.

GAMES IN BASIC (124) Lander, biorhythms, desert, Phoenix, Star Wars, others.

QUEST (152) Role playing adventure fantasy game. (Requires CGA.)

SPACE WAR (158) Dogfight in outer space, using phasers, photon torpedoes, etc.

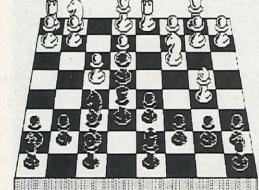
BRIDGE PAL (171) Complete game of contract bridge, with tutorial.

FENIX (193) Just like the famous arcade game.

PINBALL GAMES (197) Pinball, Rain, Twilight Zone, Wizard, etc.

KID-GAMES (GAM8) Animals math, clock game, alphabet, etc.

CHESS (GAM9) Incredible, 2D and 3D. Many levels. Play back moves, store games.



EGA RISK (GAM11) World domination in great color. Includes EGA Asteroids.

PC PRO-GOLF (GAM27-28) Great graphics. Complete 18 hole, 72 par course. (CGA)

PEARL HARBOR (GAM32) Shoot down Jap Zeros before they destroy U.S. Fleet. (CGA)

ULTIMA 21 DELUXE (GAM34) Best Blackjack game around. Includes Video Poker.

FORD SIMULATOR (GAM37) Great driving simulation. (CGA)



MUSIC

PIANOMAN 4.0 (301) Turn your keyboard into a piano.

PC-MUSICIAN (302) Compose, save, and play music.

WORD PROCESSING

PC-WRITE 3.0 (434, 435, 436) (3 disks) Newest version! Very popular and complete. Includes spelling checker.

PC-TYPE+ (421-423) (3 disks) Excellent. Includes mail merge, 100,000 word spelling checker. Interfaces with PC-File+, PC-Style.

MAXI-MAX (432) 59 macros to use with Word Perfect 4.2 or later. 11 templates for forms, border designs, etc.

GRAPHICS

KEYDRAW CAD SYSTEM (1001, 1002, 1065) (3 disks) Popular. Also uses mouse. (Requires color graphics - CGA.)



CURSOR MODE SC1 PG80 10 1

SIDEWAYS (1007) Prints text sideways. Useful for spreadsheets.

SIMCGA/HGCIBM (1027, 1062) (2 disks) Use with Hercules graphics card/compatibles to run programs requiring CGA on your monochrome PC.

IMAGE 3-D (1048) Create and edit 3-D objects. Move, scale, rotate and tip image.

FINGERPAINT (1050) Use keyboard or mouse to draw. Like MacPaint. (Requires CGA or EGA.)

DANCAD 3-D (1051, 1052) (2 disks) Create 3-D graphics. Rotate, magnify, etc. Runs on CGA, EGA, or Hercules.



FANTASY (1057) Create flowing graphic images with mouse or keyboard. (CGA).

FLOWCHARTING (1078-1079) Complete system for flowcharts, organizational, electrical, etc., with symbols.

SPREADSHEETS

AS-EASY-AS (505) Great. Includes screen help menus. Utilizes function keys. A Lotus clone that reads Lotus files.

PC-CALC+ (512-514) (3 disks) Jim Button's famous Lotus clone.

BASIC

PC-PROFESSOR (1401) BASIC tutorial. Good.

BASIC PROGRAM GENERATOR (1402) The menu driven way to write programs.

B-WINDOW (1407) Give windowing capabilities to your Basic program.

UTILITIES

HOMEBASE (2608, 2612, 2613) Complete desktop organizer. Great!

PROFESSIONAL MASTERKEY (2805) Like Norton's. Retrieve deleted files. A lifesaver.

BAKER'S DOZEN (2821) 13 utilities from Buttonware.

AUTOMENU (3003) Make PC menu driven. Incl. passwords.

SCREEN (3006) Save your monitor from screen burn-in.

DOT MATRIX FONTS (3061-3062) (2 disks) Print your text in different fonts. Works with most printers.

ACCOUNTING/FINANCE

MARKET CGA (BUS17) Performs sophisticated analysis on stocks, funds, etc. (EGA version is BUS16.)

(1001, 501) 501 (3061-3062) (2 disks) (1002, 502) (3063-3064) (2 disks) (1003, 503) (3065-3066) (2 disks) (1004, 504) (3067-3068) (2 disks) (1005, 505) (3069-3070) (2 disks) (1006, 506) (3071-3072) (2 disks) (1007, 507) (3073-3074) (2 disks) (1008, 508) (3075-3076) (2 disks) (1009, 509) (3077-3078) (2 disks) (1010, 510) (3079-3080) (2 disks) (1011, 511) (3081-3082) (2 disks) (1012, 512) (3083-3084) (2 disks) (1013, 513) (3085-3086) (2 disks) (1014, 514) (3087-3088) (2 disks) (1015, 515) (3089-3090) (2 disks) (1016, 516) (3091-3092) (2 disks) (1017, 517) (3093-3094) (2 disks) (1018, 518) (3095-3096) (2 disks) (1019, 519) (3097-3098) (2 disks) (1020, 520) (3099-3100) (2 disks) (1021, 521) (3101-3102) (2 disks) (1022, 522) (3103-3104) (2 disks) (1023, 523) (3105-3106) (2 disks) (1024, 524) (3107-3108) (2 disks) (1025, 525) (3109-3110) (2 disks) (1026, 526) (3111-3112) (2 disks) (1027, 527) (3113-3114) (2 disks) (1028, 528) (3115-3116) (2 disks) (1029, 529) (3117-3118) (2 disks) (1030, 530) (3119-3120) (2 disks) (1031, 531) (3121-3122) (2 disks) (1032, 532) (3123-3124) (2 disks) (1033, 533) (3125-3126) (2 disks) (1034, 534) (3127-3128) (2 disks) (1035, 535) (3129-3130) (2 disks) (1036, 536) (3131-3132) (2 disks) (1037, 537) (3133-3134) (2 disks) (1038, 538) (3135-3136) (2 disks) (1039, 539) (3137-3138) (2 disks) (1040, 540) (3139-3140) (2 disks) (1041, 541) (3141-3142) (2 disks) (1042, 542) (3143-3144) (2 disks) (1043, 543) (3145-3146) (2 disks) (1044, 544) (3147-3148) (2 disks) (1045, 545) (3149-3150) (2 disks) (1046, 546) (3151-3152) (2 disks) (1047, 547) (3153-3154) (2 disks) (1048, 548) (3155-3156) (2 disks) (1049, 549) (3157-3158) (2 disks) (1050, 550) (3159-3160) (2 disks) (1051, 551) (3161-3162) (2 disks) (1052, 552) (3163-3164) (2 disks) (1053, 553) (3165-3166) (2 disks) (1054, 554) (3167-3168) (2 disks) (1055, 555) (3169-3170) (2 disks) (1056, 556) (3171-3172) (2 disks) (1057, 557) (3173-3174) (2 disks) (1058, 558) (3175-3176) (2 disks) (1059, 559) (3177-3178) (2 disks) (1060, 560) (3179-3180) (2 disks) (1061, 561) (3181-3182) (2 disks) (1062, 562) (3183-3184) (2 disks) (1063, 563) (3185-3186) (2 disks) (1064, 564) (3187-3188) (2 disks) (1065, 565) (3189-3190) (2 disks) (1066, 566) (3191-3192) (2 disks) (1067, 567) (3193-3194) (2 disks) (1068, 568) (3195-3196) (2 disks) (1069, 569) (3197-3198) (2 disks) (1070, 570) (3199-3200) (2 disks) (1071, 571) (3201-3202) (2 disks) (1072, 572) (3203-3204) (2 disks) (1073, 573) (3205-3206) (2 disks) (1074, 574) (3207-3208) (2 disks) (1075, 575) (3209-3210) (2 disks) (1076, 576) (3211-3212) (2 disks) (1077, 577) (3213-3214) (2 disks) (1078, 578) (3215-3216) (2 disks) (1079, 579) (3217-3218) (2 disks) (1080, 580) (3219-3220) (2 disks) (1081, 581) (3221-3222) (2 disks) (1082, 582) (3223-3224) (2 disks) (1083, 583) (3225-3226) (2 disks) (1084, 584) (3227-3228) (2 disks) (1085, 585) (3229-3230) (2 disks) (1086, 586) (3231-3232) (2 disks) (1087, 587) (3233-3234) (2 disks) (1088, 588) (3235-3236) (2 disks) (1089, 589) (3237-3238) (2 disks) (1090, 590) (3239-3240) (2 disks) (1091, 591) (3241-3242) (2 disks) (1092, 592) (3243-3244) (2 disks) (1093, 593) (3245-3246) (2 disks) (1094, 594) (3247-3248) (2 disks) (1095, 595) (3249-3250) (2 disks) (1096, 596) (3251-3252) (2 disks) (1097, 597) (3253-3254) (2 disks) (1098, 598) (3255-3256) (2 disks) (1099, 599) (3257-3258) (2 disks) (1100, 600) (3259-3260) (2 disks) (1101, 601) (3261-3262) (2 disks) (1102, 602) (3263-3264) (2 disks) (1103, 603) (3265-3266) (2 disks) (1104, 604) (3267-3268) (2 disks) (1105, 605) (3269-3270) (2 disks) (1106, 606) (3271-3272) (2 disks) (1107, 607) (3273-3274) (2 disks) (1108, 608) (3275-3276) (2 disks) (1109, 609) (3277-3278) (2 disks) (1110, 610) (3279-3280) (2 disks) (1111, 611) (3281-3282) (2 disks) (1112, 612) (3283-3284) (2 disks) (1113, 613) (3285-3286) (2 disks) (1114, 614) (3287-3288) (2 disks) (1115, 615) (3289-3290) (2 disks) (1116, 616) (3291-3292) (2 disks) (1117, 617) (3293-3294) (2 disks) (1118, 618) (3295-3296) (2 disks) (1119, 619) (3297-3298) (2 disks) (1120, 620) (3299-3300) (2 disks) (1121, 621) (3301-3302) (2 disks) (1122, 622) (3303-3304) (2 disks) (1123, 623) (3305-3306) (2 disks) (1124, 624) (3307-3308) (2 disks) (1125, 625) (3309-3310) (2 disks) (1126, 626) (3311-3312) (2 disks) (1127, 627) (3313-3314) (2 disks) (1128, 628) (3315-3316) (2 disks) (1129, 629) (3317-3318) (2 disks) (1130, 630) (3319-3320) (2 disks) (1131, 631) (3321-3322) (2 disks) (1132, 632) (3323-3324) (2 disks) (1133, 633) (3325-3326) (2 disks) (1134, 634) (3327-3328) (2 disks) (1135, 635) (3329-3330) (2 disks) (1136, 636) (3331-3332) (2 disks) (1137, 637) (3333-3334) (2 disks) (1138, 638) (3335-3336) (2 disks) (1139, 639) (3337-3338) (2 disks) (1140, 640) (3339-3340) (2 disks) (1141, 641) (3341-3342) (2 disks) (1142, 642) (3343-3344) (2 disks) (1143, 643) (3345-3346) (2 disks) (1144, 644) (3347-3348) (2 disks) (1145, 645) (3349-3350) (2 disks) (1146, 646) (3351-3352) (2 disks) (1147, 647) (3353-3354) (2 disks) (1148, 648) (3355-3356) (2 disks) (1149, 649) (3357-3358) (2 disks) (1150, 650) (3359-3360) (2 disks) (1151, 651) (3361-3362) (2 disks) (1152, 652) (3363-3364) (2 disks) (1153, 653) (3365-3366) (2 disks) (1154, 654) (3367-3368) (2 disks) (1155, 655) (3369-3370) (2 disks) (1156, 656) (3371-3372) (2 disks) (1157, 657) (3373-3374) (2 disks) (1158, 658) (3375-3376) (2 disks) (1159, 659) (3377-3378) (2 disks) (1160, 660) (3379-3380) (2 disks) (1161, 661) (3381-3382) (2 disks) (1162, 662) (3383-3384) (2 disks) (1163, 663) (3385-3386) (2 disks) (1164, 664) (3387-3388) (2 disks) (1165, 665) (3389-3390) (2 disks) (1166, 666) (3391-3392) (2 disks) (1167, 667) (3393-3394) (2 disks) (1168, 668) (3395-3396) (2 disks) (1169, 669) (3397-3398) (2 disks) (1170, 670) (3399-3400) (2 disks) (1171, 671) (3401-3402) (2 disks) (1172, 672) (3403-3404) (2 disks) (1173, 673) (3405-3406) (2 disks) (1174, 674) (3407-3408) (2 disks) (1175, 675) (3409-3410) (2 disks) (1176, 676) (3411-3412) (2 disks) (1177, 677) (3413-3414) (2 disks) (1178, 678) (3415-3416) (2 disks) (1179, 679) (3417-3418) (2 disks) (1180, 680) (3419-3420) (2 disks) (1181, 681) (3421-3422) (2 disks) (1182, 682) (3423-3424) (2 disks) (1183, 683) (3425-3426) (2 disks) (1184, 684) (3427-3428) (2 disks) (1185, 685) (3429-3430) (2 disks) (1186, 686) (3431-3432) (2 disks) (1187, 687) (3433-3434) (2 disks) (1188, 688) (3435-3436) (2 disks) (1189, 689) (3437-3438) (2 disks) (1190, 690) (3439-3440) (2 disks) (1191, 691) (3441-3442) (2 disks) (1192, 692) (3443-3444) (2 disks) (1193, 693) (3445-3446) (2 disks) (1194, 694) (3447-3448) (2 disks) (1195, 695) (3449-3450) (2 disks) (1196, 696) (3451-3452) (2 disks) (1197, 697) (3453-3454) (2 disks) (1198, 698) (3455-3456) (2 disks) (1199, 699) (3457-3458) (2 disks) (1200, 700) (3459-3460) (2 disks) (1201, 701) (3461-3462) (2 disks) (1202, 702) (3463-3464) (2 disks) (1203, 703) (3465-3466) (2 disks) (1204, 704) (3467-3468) (2 disks) (1205, 705) (3469-3470) (2 disks) (1206, 706) (3471-3472) (2 disks) (1207, 707) (3473-3474) (2 disks) (1208, 708) (3475-3476) (2 disks) (1209, 709) (3477-3478) (2 disks) (1210, 710) (3479-3480) (2 disks) (1211, 711) (3481-3482) (2 disks) (1212, 712) (3483-3484) (2 disks) (1213, 713) (3485-3486) (2 disks) (1214, 714) (3487-3488) (2 disks) (1215, 715) (3489-3490) (2 disks) (1216, 716) (3491-3492) (2 disks) (1217, 717) (3493-3494) (2 disks) (1218, 718) (3495-3496) (2 disks) (1219, 719) (3497-3498) (2 disks) (1220, 720) (3499-3500) (2 disks) (1221, 721) (3501-3502) (2 disks) (1222, 722) (3503-3504) (2 disks) (1223, 723) (3505-3506) (2 disks) (1224, 724) (3507-3508) (2 disks) (1225, 725) (3509-3510) (2 disks) (1226, 726) (3511-3512) (2 disks) (1227, 727) (3513-3514) (2 disks) (1228, 728) (3515-3516) (2 disks) (1229, 729) (3517-3518) (2 disks) (1230, 730) (3519-3520) (2 disks) (1231, 731) (3521-3522) (2 disks) (1232, 732) (3523-3524) (2 disks) (1233, 733) (3525-3526) (2 disks) (1234, 734) (3527-3528) (2 disks) (1235, 735) (3529-3530) (2 disks) (1236, 736) (3531-3532) (2 disks) (1237, 737) (3533-3534) (2 disks) (1238, 738) (3535-3536) (2 disks) (1239, 739) (3537-3538) (2 disks) (1240, 740) (3539-3540) (2 disks) (1241, 741) (3541-3542) (2 disks) (1242, 742) (3543-3544) (2 disks) (1243, 743) (3545-3546) (2 disks) (1244, 744) (3547-3548) (2 disks) (1245, 745) (3549-3550) (2 disks) (1246, 746) (3551-3552) (2 disks) (1247, 747) (3553-3554) (2 disks) (1248, 748) (3555-3556) (2 disks) (1249, 749) (3557-3558) (2 disks) (1250, 750) (3559-3560) (2 disks) (1251, 751) (3561-3562) (2 disks) (1252, 752) (3563-3564) (2 disks) (1253, 753) (3565-3566) (2 disks) (1254, 754) (3567-3568) (2 disks) (1255, 755) (3569-3570) (2 disks) (1256, 756) (3571-3572) (2 disks) (1257, 757) (3573-3574) (2 disks) (1258, 758) (3575-3576) (2 disks) (1259, 759) (3577-3578) (2 disks) (1260, 760) (3579-3580) (2 disks) (1261, 761) (3581-3582) (2 disks) (1262, 762) (3583-3584) (2 disks) (1263, 763) (3585-3586) (2 disks) (1264, 764) (3587-3588) (2 disks) (1265, 765) (3589-3590) (2 disks) (1266, 766) (3591-3592) (2 disks) (1267, 767) (3593-3594) (2 disks) (1268, 768) (3595-3596) (2 disks) (1269, 769) (3597-3598) (2 disks) (1270, 770) (3599-3600) (2 disks) (1271, 771) (3601-3602) (2 disks) (1272, 772) (3603-3604) (2 disks) (1273, 773) (3605-3606) (2 disks) (1274, 774) (3607-3608) (2 disks) (1275, 775) (3609-3610) (2 disks) (1276, 776) (3611-3612) (2 disks) (1277, 777) (3613-3614) (2 disks) (1278, 778) (3615-3616) (2 disks) (1279, 779) (3617-3618) (2 disks) (1280, 780) (3619-3620) (2 disks) (1281, 781) (3621-3622) (2 disks) (1282, 782) (3623-3624) (2 disks) (1283, 783) (3625-3626) (2 disks) (1284, 784) (3627-3628) (2 disks) (1285, 785) (3629-3630) (2 disks) (1286, 786) (3631-3632) (2 disks) (1287, 787) (3633-3634) (2 disks) (1288, 788) (3635-3636) (2 disks) (1289, 789) (3637-3638) (2 disks) (1290, 790) (3639-3640) (2 disks) (1291, 791) (3641-3642) (2 disks) (1292, 792) (3643-3644) (2 disks) (1293, 793) (3645-3646) (2 disks) (1294, 794) (3647-3648) (2 disks) (1295, 795) (3649-3650) (2 disks) (1296, 796) (3651-3652) (2 disks) (1297, 797) (3653-3654) (2 disks) (1298, 798) (3655-3656) (2 disks) (1299, 799) (3657-3658) (2 disks) (1300, 800) (3659-3660) (2 disks) (1301, 801) (3661-3662) (2 disks) (1302, 802) (3663-3664) (2 disks) (1303, 803) (3665-3666) (2 disks) (1304, 804) (3667-3668) (2 disks) (1305, 805) (3669-3670) (2 disks) (1306, 806) (3671-3672) (2 disks) (1307, 807) (3673-3674) (2 disks) (1308, 808) (3675-3676) (2 disks) (1309, 809) (3677-3678) (2 disks) (1310, 810) (3679-3680) (2 disks) (1311, 811) (3681-3682) (2 disks) (1312, 812) (3683-3684) (2 disks) (1313, 813) (3685-3686) (2 disks) (1314, 814) (3687-3688) (2 disks) (1315, 815) (3689-3690) (2 disks) (1316, 816) (3691-369

BEST-SELLING SOFTWARE

These best seller lists, prepared exclusively for HOME-OFFICE COMPUTING by Egghead Discount Software, are based on February sales at 190 Egghead stores around the United States and Canada.



I
B
M

BUSINESS

1. TurboTax
ChipSoft
2. Lotus 1-2-3 V2.01
Lotus Development Corp.
3. WordPerfect v5.0 & v4.2
WordPerfect Corp.
4. TurboTax California
Supplement
ChipSoft
5. ProComm Plus v1.1
Datastorm Technologies
6. Sideways v3.2
Funk Software
7. Windows/286 v2.10
Microsoft Corp.
8. Allways
Funk Software
9. Carbon Copy Plus v5.0
Meridian Technology
10. Freelance Plus v3.0
Lotus Development Corp.

HOME/SMALL BUSINESS

1. The Print Shop w/Graphics Library
Broderbund Software
2. Managing Your Money v4.0
MECA
3. Calendar Creator Plus
Channelmark Corp.
4. PrintMaster Plus Bonus Pack
Unison World
5. Micro Cookbook
Pinpoint Publishing
6. WillMaker v3.0
Nolo Press
7. Dream House
Computer Easy International, Inc.
8. Print Magic
Epyx
9. Address Book Plus, Sr.
Channelmark Corp.
10. News Master II
Unison World

EDUCATION

1. Learning DOS v2.0
Microsoft Corp.
2. Math Blaster Plus
Davidson & Associates
3. Where in the USA . . .
Broderbund Software
4. Where in the World . . .
Broderbund Software
5. Reader Rabbit
The Learning Company
6. Think Quick!
The Learning Company
7. Typing Tutor IV
Simon & Schuster
8. Math Rabbit
The Learning Company
9. Sesame Street Letters For You
Polarware Software
10. Barron's Study Program for
the SAT
Barron's Educational Series

ENTERTAINMENT

1. Flight Simulator v3.0
Microsoft Corp.
2. F-19 Stealth Fighter
MicroProse Software
3. T.V. Game Shows
ShareData
4. Jack Nicklaus Golf
Accolade
5. Grand Prix Circuit
Accolade
6. Scrabble
Electronic Arts
7. Test Drive
Accolade
8. Hardball
Accolade
9. Tracon
Polarware Software
10. Marble Madness
Electronic Arts

M
A
C
I
N
T
O
S
H

BUSINESS

1. Excel v1.5
Microsoft Corp.
2. Word v3.01-v3.02
Microsoft Corp.
3. Tops v2.1
Tops, Inc.
4. MacDraw II
Claris Corp.
5. PowerPoint v2.01
Microsoft Corp.
6. Pyro v3.0
Fifth Generation Systems
7. PageMaker v3.0
Aldus Corp.
8. S.U.M.
Symantec Corp.
9. FileMaker II
Claris Corp.
10. Suitcase II v1.2
Fifth Generation Systems

HOME/SMALL BUSINESS

1. Quicken v1.0
Intuit
2. MacInTax
Softview, Inc.
3. SuperPaint v2.0
Silicon Beach Software
4. The Print Shop
Broderbund Software
5. Calendar Creator v1.0
Channelmark Corp.
6. MacInTax California
Supplement
Softview, Inc.
7. World Class Fonts!/Vol 1 & 2
Dubl-Click Software
8. WetPaint/Vol 1 & 2
Dubl-Click Software
9. WillMaker v3.0
Nolo Press
10. Poster Maker Plus
Broderbund Software

EDUCATION

1. Where in the World . . .
Broderbund Software
2. Mavis Beacon Teaches Typing
The Software Toolworks/EA
3. Reader Rabbit
The Learning Company
4. Manhole
Mediagenic
5. Math Blaster!
Davidson & Associates
6. Type!
Broderbund Software
7. HyperTutor
Channelmark Corp.
8. Kids Time
Great Wave Software
9. Perfect Score w/Perfect
College
Mindscape
10. Once Upon a Time . . .
Compu-Teach

ENTERTAINMENT

1. Falcon v2.0
Spectrum HoloByte
2. Flight Simulator v1.02
Microsoft Corp.
3. Colony
Mindscape
4. Sargon 4
Spinnaker Software
5. Beyond Dark Castle
Silicon Beach Software
6. Pirates
MicroProse
7. Leisure Suit Larry
Sierra On-Line
8. Quarterstaff
Infocom/Mediagenic
9. Shufflepuck Cafe
Broderbund Software
10. Hitchiker's Guide to the
Galaxy
Infocom/Mediagenic

A
P
P
L
E

BUSINESS

1. Copy II Plus
Central Point Software
2. AppleWorks v2.1
Claris Corp.
3. TimeOut QuickSpell
Beagle Brothers
4. WordPerfect v1.1 & v2.0
WordPerfect Corp.
5. AppleWorks GS
Claris Corp.
6. Publish-It! v2.0
Timeworks
7. List & Mail
Avery
8. TimeOut SuperFonts
Beagle Brothers
9. TimeOut Thesaurus
Beagle Brothers
10. TimeOut UltraMacros
Beagle Brothers

HOME/SMALL BUSINESS

1. The Print Shop w/Graphics Library
Broderbund Software
2. Quicken
Intuit
3. Bank Street Writer Plus
Broderbund Software
4. The Print Shop Sampler
Graphics
Broderbund Software
5. The Print Shop Companion
Broderbund Software
6. The Print Shop Party Graphics
Broderbund Software
7. Print Magic
Epyx
8. Cartooners
Electronic Arts
9. MultiScribe v3.0
StyleWare/Claris Corp.
10. The Print Shop Holiday
Graphics
Broderbund Software

EDUCATION

1. Where in the USA . . .
Broderbund Software
2. Where in the World . . .
Broderbund Software
3. Math Blaster Plus
Davidson & Associates
4. Think Quick!
The Learning Company
5. Mavis Beacon Teaches Typing
The Software Toolworks/EA
6. Children's Writing &
Publishing Center
The Learning Company
7. The Oregon Trail
MECC
8. Magic Spells
The Learning Company
9. Sesame Street Letters For You
Polarware Software
10. Reader Rabbit
The Learning Company

ENTERTAINMENT

1. Wings of Fury
Broderbund Software
2. Might & Magic II
*New World Computing/
Mediagenic*
3. Who Framed Roger Rabbit?
Buena Vista
4. Test Drive
Accolade
5. Zany Golf
Electronic Arts
6. Rampage
Activision/Mediagenic
7. Hardball
Accolade
8. Choplifter and David's
Midnight Magic
Broderbund Software
9. Chuck Yeager's A.F.T.
Electronic Arts
10. King's Quest IV
Sierra On-Line

I
B
M

M
A
C
I
N
T
O
S
H

A
P
P
L
E

At last you can get that desktop publishing look with the convenience of a built-in word processor.

Introducing BetterWorking Word Publisher™

In the past you had two choices. You either struggled with the expense and difficulty of integrating a word processing program with a separate desktop publishing program. Or you settled for printed material that had a typewriter look. Now there is Word Publisher.

"This is a lot of program for any price and a dynamite deal for \$60."

Bob Schwabach, San Francisco Chronicle

Everything you need for desktop publishing.

Write and layout professional looking newsletters, forms, flyers, ads, proposals, reports and more. Choose from among Word Publisher's many **fonts**, type styles, and sizes to produce professional looking, visually attractive, customized documents.

Dazzle your documents with clip art **graphics**. Using industry standard TIFF and PC Paintbrush® files, you can select from thousands of commercially available clip art images and bring them right into Word Publisher.

And get that clean, fresh layout you see in magazine articles and newsletters using the **multi-column** format with up to 4 columns on a page. Use **lines** and boxes to emphasize special sections.

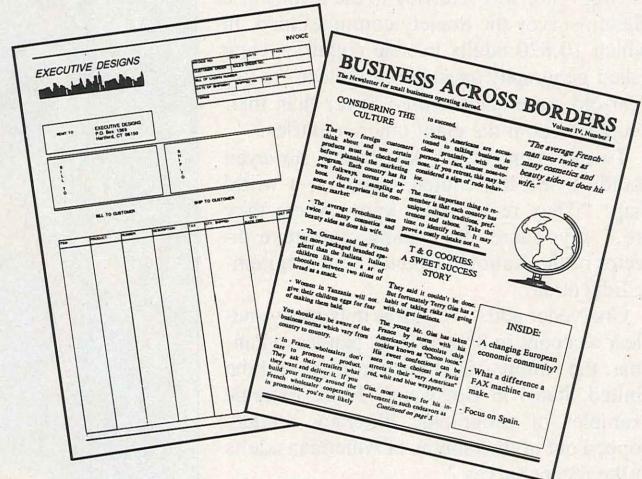
Printer Power

With Word Publisher, you can get professional looking documents with both laser and all popular dot matrix printers. Over 250 printers in all!

World Class Word Processing

You get a full power word processor with all those features you'd expect including insert, delete, cut, paste, copy, headers and footers, pagination, search and replace. And a few things you wouldn't expect.

Word Publisher comes complete with an outliner, an auto-hyphenation feature, a 100,000 word spelling checker and corrector, and a thesaurus.



Obvious to Use

Like other Spinnaker products, Word Publisher has on-screen prompts, drop down menus, and context sensitive help. Making text or layout changes is a breeze. And with the View mode's "What you see is what you get" display, there's no guesswork involved.

With these important desktop publishing features and the powerful, built-in word processor you get two products in one! And at **\$59.95**, Word Publisher costs less than half the price of other desktop publishing products.

See for yourself. Word Publisher is available at software dealers everywhere, or call us at **1-800-826-0706** to order. Add \$3.50 for shipping.



One Kendall Square, Cambridge MA 02139

© 1988 Spinnaker Software Corporation. All rights reserved. BetterWorking Word Publisher is a trademark of Spinnaker Software Corporation. Spinnaker is a registered trademark of Spinnaker Software Corporation. PC Paintbrush is a registered trademark of Z-Soft Corporation.

CIRCLE READER SERVICE 62

FAMILY COMPUTING®

Finding the Lost Generation

A Look at Software That Helps Kids and Adults Overcome Geographic Illiteracy

BY GWEN SOLOMON

H ave you heard of the lost generation?" asked Gilbert Grosvenor, president of the National Geographic Society. "We have found them. They are lost. They haven't the faintest idea where they are."

Grosvenor was referring to the results of a Gallup survey the Society commissioned, in which 10,820 adults in nine countries were asked geography questions. Eighteen- to 24-year-old Americans scored lower than their counterparts in the eight other countries.

Twenty percent of Americans surveyed couldn't find the United States on a world map. "They really don't know where they are," says James W. Vining, executive director of the National Council for Geographic Education.

Grosvenor adds, "Contras in Norway, nuclear weapons in Switzerland, pandas in Panama, the summer Olympics in Iraq, and the United States in Botswana. These extreme examples of geographic illiteracy actually popped out of the mouths of American adults in the recent survey."

DOES IT MATTER?

Given that most of us can find our way to work, to the supermarket, and to the places we want to go, how essential is geography? More important, why should our children learn it?

Geography is more than just locating cities and rivers on maps. It includes facts about an area's politics, history, industry, languages, ethnic groups, religions, natural resources, and more.

Christopher Salter, a consultant to the National Geographic Society and chairman of the geography department at the University of Missouri, says, "Geography furnishes a framework for understanding the world. Once you get past the 'Trivial Pursuit' aspect of it—knowing the state capitals and things like that—it helps you see the deeper interplay of economics, politics, history, and cul-



ture at work in a situation."

Grosvenor adds, "Americans do not understand the world at a time when we critically need to understand foreign consumers, markets, customs, strengths, and weaknesses."

WHAT'S BEING DONE?

The need to improve Americans' awareness of geography is obvious; for example, a student wrote recently: "The English Channel runs right in between Spain and France." Another asked: "Is New England a separate country?"

To combat geographic illiteracy, Congress declared National Geography Awareness Week to be observed every November. The city of San Diego and the state of South Dakota recently established geography requirements for high school graduation. And colleges, such as the University of Colorado (Boulder), are beginning to add geography to their list of required courses. The National Geographic Society holds summer seminars for teachers on how to teach geography.

In addition, there is a substantial collection

of commercial software available for children and adults to use at home. The most effective packages combine the computer's appeal with some of the more fascinating aspects of geography. Basically, there are three types of geography programs from which to choose: drill and practice, games, and databases.

DRILL AND PRACTICE

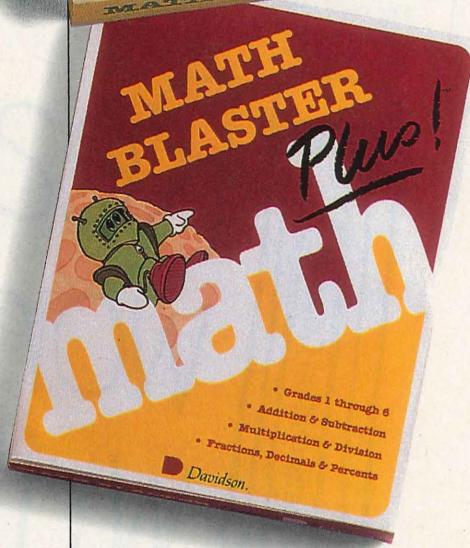
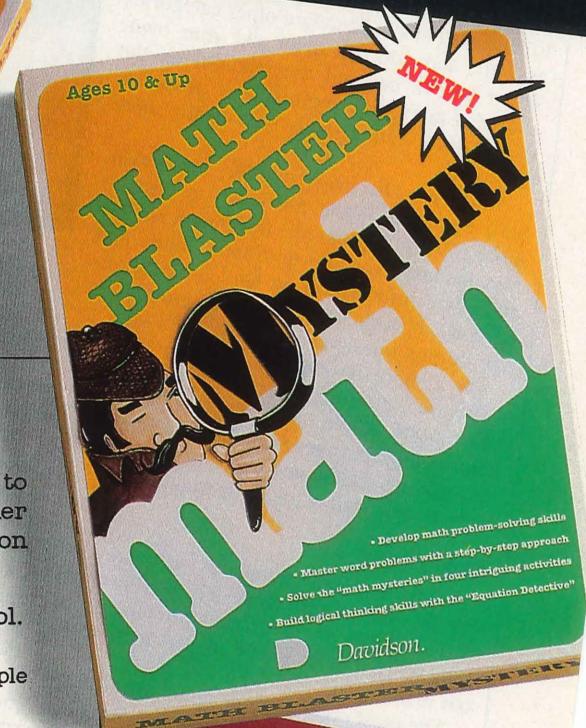
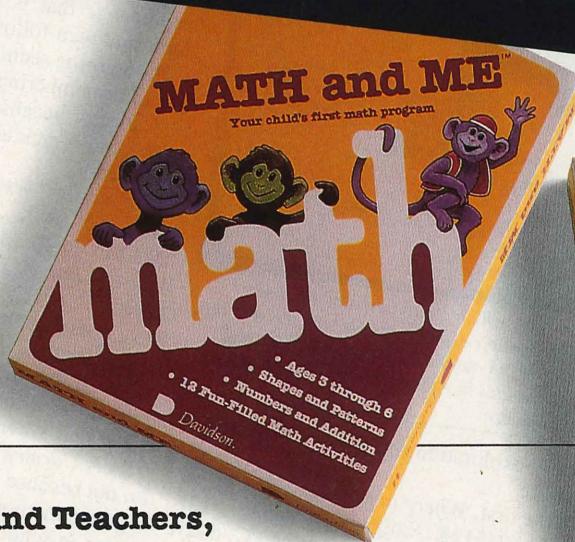
"What's the capital of Spain?" takes on a new dimension on a computer. Those boring and seemingly endless classroom drills have a fresh appeal, thanks to new software.

A popular way to learn geography facts is to have the computer quiz you on people, places, and things. With many of these programs, on-screen maps appear, and you travel from place to place, identifying locations and learning new information as you go.

In DLM's *U.S. Atlas Action* (64K Apple; \$46), for example, students 9 and up choose map or fact quizzes. In the Vacation Map Game, you watch a state flash and pick the scenic site that's there. You also identify mountains, rivers, and state capitals on

GWEN SOLOMON is a writer, educational computer consultant, and computer coordinator in New York City. She also writes the monthly column *Technology Solutions* for Electronic Learning magazine.

Teach your children well.



Dear Parents and Teachers,

As a parent and former teacher, I know how challenging it can be to instill in your children a positive attitude towards math. Whether your child is finishing pre-school or beginning high school, Davidson offers math software to teach your children well.

With **Math and Me™**, your children will get a head start in school.

- Designed for ages 3 through 6
- Offers practice in identifying shapes, numbers, patterns, and simple addition

Your children will master math's basics with **Math Blaster Plus™**, the best-selling math software ever!

- Designed for grades 1 through 6
- Includes five learning activities covering addition, subtraction, multiplication, division, as well as fractions, decimals, and percents

Watch your children track the "Equation Detective" through a variety of problem-solving math mysteries with **new Math Blaster Mystery™**.

- Designed for ages 10 and up
- Builds confidence as children master word problems and develop critical thinking skills

Animated characters, printed Certificates of Excellence, and words of encouragement provide the positive reinforcement children need to be successful.

Visit your local software dealer TODAY and ask for Davidson—the software designed by teachers and tested with children like yours.

Jan Davidson
Jan Davidson, Ph.D.

Founder and President, Davidson & Associates, Inc.

D *Davidson*. Teaching Tools From Teachers
Available for Apple®, IBM®, Tandy® and major compatibles. We offer 5 1/4" or 3 1/2" disk formats.
CIRCLE READER SERVICE 43

YES! I want to be a Davidson fan. Please send me more information on programs that will teach my children well.

Your Name _____

Address _____

City _____

State _____

Zip _____

Phone# () _____

Computer Type _____

Mail coupon to:

Davidson & Associates, Inc.

3135 Kashiwa St., Torrance, CA 90505

800/556-6141 • 213/534-2250 (CA only)

HOC-5/89

FAMILY COMPUTING

maps. Then you play fact games with landmarks, famous cities, and trivia. (Which state produces maple syrup? Which is home to Niagara Falls?) There are other categories as well, and you can even add your own. When you've covered the material on the United States, the companion program, *World Atlas Action*, takes you to the other territories.

American Discovery (512K Macintosh; \$50) by Great Wave Software, is also an interactive quiz program. Seventeen subject files include over 400 questions, hints, and additional information on United States geography, history, and trivia. The program is appropriate for anyone over 10 years old.

On a more basic level, Weekly Reader Software/Optimum Resource Inc.'s *Map Skills* (48K Apple, 64K Apple IIGS; \$50) helps youngsters ages 8 and up develop problem-solving techniques while they learn directions and follow travel instructions.

GAMES PLUS

Even more entertaining is software that involves adventure games. The goal in some of the games is to expand knowledge of geography, but in others, players learn without realizing it.

The most popular games-plus software for anyone age 9 and up is the *Carmen Sandiego*



Do you know which states Lewis and Clark explored on their expedition? Or which rivers they followed? Find out these and other history and geography facts in American Discovery by Great Wave Software.

mystery exploration series from Broderbund Software.

In the first, *Where in the World Is Carmen Sandiego?* (512K Amiga, 64K Apple, 512K Apple IIGS, C 64/128, 128K IBM PC, 512K Mac; \$35 to \$45), you begin your adventure at the Acme Detective Agency and learn that Carmen Sandiego and her gang have stolen a public treasure or landmark. It's your mission to catch the thieves and return the treasure.

You travel to the scene of the crime, question witnesses, and uncover evidence. These

clues involve cities, languages, currency, historical events, flags, and topography, for example. To decipher the clues, you turn to the almanac that is included with the program, and then follow your instincts.

The learning seems incidental, but in addition to remembering information about foreign places because it's important to the game, you'll pick up a few research skills in the process.

The sequels, *Where in the USA Is Carmen Sandiego?* (64K Apple, C 64/128, 128K IBM PC, 512K Macintosh; \$40 to \$50) and *Where in Europe Is Carmen Sandiego?* (64K Apple, C 64/128, 128K IBM PC; \$40 to \$45), continue the adventures and education in new locales.

Satesh Singh, a 17-year-old New Yorker, finds *Carmen* intriguing. "I remembered the states and where they are in *Where in the USA Is Carmen Sandiego?* because I wanted to, not because I had to. It was more interesting than memorizing states and capitals from a map in school."

World helped Satesh in his global history class as well. "I had learned things I didn't realize I knew—about countries and capitals, currencies, landmarks, things like that. I knew facts the other students didn't and impressed the teacher. I got a higher mark."

Carmen also helped Satesh put current



Reading worth writing for.



Consumer Information Center
Department RW
Pueblo, Colorado 81009

If you're looking for some good reading, you've just found it. The free Consumer Information Catalog.

The Catalog lists about 200 federal publications, many of them free. They can help you eat right, manage your money, stay healthy, plan your child's education, learn about federal benefits and more.

So sharpen your pencil. Write for the free Consumer Information Catalog. And get reading worth writing for.

events into perspective. "After I had learned something about a country and then saw the country mentioned in the newspaper, I wanted to read about it."

Another popular set of travel programs is *Ticket to*, Blue Lion Software's series (128K Apple, 512K Apple IIGS, C 64/128, 128K IBM PC; \$30 to \$45) for ages 9 and up. In *Ticket to London*, you take a 10-day, all-inclusive trip, enjoy the sights, and learn about London and the United Kingdom.

In *Ticket to Spain*, you begin in Madrid and travel around the country in search of a family heirloom. You explore and learn a great deal about Spain, and you learn the language too if you play in Spanish. A phrase book is included. *Ticket to Paris*, *Ticket to Washington, D.C.*, and *Ticket to the National Parks* complete the itinerary.

Mindscape's *Balance of Power* and subLOGIC's flight simulators are billed as entertainment products for teenagers and adults. But as a player strives to keep peace with the Soviets in *Balance of Power* (512K Amiga, 128K Apple, 512K Atari ST, 512K IBM PC, 128K Macintosh; \$40 to \$50), he or she must simulate negotiations with countries selected from an on-screen world map. Taking command of the state of affairs requires that you learn where countries are located and where they stand politically. You can't help but master the relevant geography. In *Balance of Power: The 1990 Edition* (640K IBM PC w/ Microsoft Windows or \$15 runtime version from Mindscape, 512K Macintosh; \$50), there are more countries involved in the foreign policy decisions, and current sociopolitical

situations are reflected. With the scenery disks for subLOGIC's *Jet* (512K Amiga, 64K Apple, 512K Atari ST, C 64/128, 256K IBM PC, 512K Macintosh; \$40 to \$50), and *Flight Simulator* (512K Amiga, 48K Apple, 512K Atari ST, C 64/128; \$50), pilots soar over the Eiffel Tower in Paris or the Golden Gate Bridge in San Francisco, observing the spatial relationship of geographic landmarks as they fly. If you are interested in improving your familiarity with national and historical

landmarks and events without actually studying, these types of games may do the trick.

MAP-AND-FACT DATABASES

Geography databases don't quiz you or take you on an action-packed adventure. Instead, they offer you a slew of information about worldwide locations, demographics, and cultural facts, which you can search in any order you choose. Generally, you can access data by isolating a region from an on-

PC Voice Mail, now only \$199.

**For an ear-opening telephone demo call:
1-800-6-WATSON Ext. 128**

Now get a combined PC-based voice mail, data modem, and telephone answering system—from only \$199. With Watson, you'll profitably improve your business communications with clients, colleagues, sales and service reps, field staff, vendors.

Benefits Of A \$20,000 + Voice Messaging System Or "Personal Receptionist" For As Low As \$199

Look at all of these advanced features: **Voice Mail**—Watson's automatic telephone answering lets callers leave and receive messages of any length 24 hours a day, 7 days a week. Ends "telephone tag" with clients and colleagues. Forwards messages automatically to mobile phones and pagers. Retrieve messages from any touchtone phone—even a car phone. Never miss an important call! And Watson provides "big system" professional sound quality!

Up To 750 Private "Mailboxes"—Give up to 750 of your colleagues or clients an individual, confidential "voice mailbox." Use them to receive private messages or record special messages for individual callers.

Electronic Telephone Book—In one key-stroke, access any of up to 750 telephone numbers, then use automatic dialing and re-dialing if busy. Store key information on contacts and get it immediately when you need it.

Hayes-Compatible Data Modem—Comes complete with 1200 BPS Hayes-compati-

ble modem (or optional 2400 BPS modem). Transfer your data files and access Telex, E-Mail, Dow Jones, or other public databases.

Simultaneously Run Popular Business Programs—Run programs such as Lotus 1-2-3 while Watson records or delivers messages.

Plus—Watson efficiently guides callers through the options they have in leaving messages... Delivers special pre-recorded messages to individuals at pre-determined times... Automatically forwards messages to other telephone lines or numbers... Provides an electronic calendar with automatic alarms and telephone notification.

30-Day Risk-Free Trial Installation

Try Watson for 30 days. If you aren't 100% satisfied, send it back for a prompt and full refund. No questions asked.

Demo Hotline

For a telephone demo call 1-800-6-WATSON EXT. 128 (in MA 1-508-651-2186 EXT. 128). Tell us EXT. 128 and receive a free five pack of diskettes if you purchase.

Order Hotline

To order Watson call 1-800-533-6120 EXT. 128 (in MA 1-508-655-6066 EXT. 128). Tell us EXT. 128 and receive a free five pack of diskettes with purchase. Price: \$199. For optional 2400 BPS modem add \$100. MasterCard, VISA, and American Express accepted. Credit card or check must accompany order.



Watson®

Natural MicroSystems Corporation, 8 Erie Drive, Natick, MA 01760-1313

OVER 30,000 SOLD

screen map and selecting the specifics you'd like to study. Everything from trade possibilities to tourist attractions to weather statistics can be used by businesspeople, travelers, and geography students to improve global awareness. Such databases may appeal to parents more than youngsters.

Particularly interesting are two customizable *HyperCard* stackware products from TENpointO for the Macintosh. Billed as national and international travel planners, they offer instant access to comprehensive business and tourist information. *City to City* and *Business Class* (1MB Macintosh; \$50 each) are valuable to anyone who travels for business or pleasure, or for any aspiring jet-setter who just wants to learn. Another database for Macintosh, MicroMap's *HyperAtlas* (1MB

Macintosh with *HyperCard*; \$99), is filled with facts about places all over the world. The ability to add your own data makes this suitable for business, travel, and learning.

PC-Globe + (384K IBM PC; \$70) from Comwell Systems has customizable color maps and databases containing profiles of 177 countries. Travelers can chart distances and convert currency; businesspeople can research economies; and anyone 8 and over interested in learning more about world geography and culture can scan the 1.5MB worth of data.

HOW TO CHOOSE

Software can certainly help both youngsters and adults learn that it's a small world after all. Drill-and-practice programs offer

many details about many places, and the best are customizable. With them, children can practice the built-in information anytime, and when faced with a geography test in school, they can enter the specific facts that they need to study. If you or your children prefer the motivation of an intriguing game to make the facts meaningful, choose games-plus programs. The incidental learning may result in a true sense of geography. When your needs are travel or business related, a geography database is probably the most direct way to gather information.

Whatever the choice, computer software may help all of us become geographically literate. Then the next time a Gallup pollster knocks at the door, we should know enough geography to know where we stand. ■

Software for Learning and Leisure

Comprehensive and Capsule Reviews of New and Noteworthy Programs for Education, Family Productivity, and Entertainment

The following ratings key and table refer to full as well as capsule software reviews. Listed are various types of computer, as designated under "System Requirements," and the models included under each designation. When a review lists additional hardware, software, or memory, it is required unless noted as "recommended" or "optional." When a review lists more than one computer, the machine marked with an asterisk (*) is the one on which the software was reviewed. Requirements are *not* listed where obvious (for instance, printers with graphics programs). Operating system requirements, such as MS-DOS or the Macintosh System file, are listed only when they're not the standard, minimum requirement (DOS 2.0 for IBM PC or compatibles, System 3.2 for the Macintosh, or ProDOS for the Apple II). For those computer systems that can use both 5.25- and 3.5-inch disks (IBM PC and PS/2 or the Apple II), we've listed only those disk sizes that are either supplied with the software or available at no extra cost from the publisher.

Ratings Key: ○ Poor; ★ Average; ★★ Good; ★★★ Very good; ★★★★ Excellent; N/A Not Applicable.

Designation	Models
512K Amiga	500, 1000, 2000
48K Apple	II/II Plus/IIC/IICGS (in IIC mode)
64K Apple	II Plus/IIC/IICGS (in IIC mode)
128K Apple	IIC/IICGS (in IIC mode)
128Ke Apple	IIC (enhanced ROM)/IIC/IICGS (in IIC mode)
Apple IIGS	IIGS only
48K Atari	800/600XL/800XL/65XE/130XE
512K Atari ST	520ST/1040ST/Mega ST
C 64	C 64, C 128 (in C 64 mode)
IBM PC	PC/XT/AT, PS/2 and compatibles
128K Macintosh	128K/512K/512Ke/Plus/SE/II
512K Macintosh	512K/512Ke/Plus/SE/II
512Ke Macintosh	512Ke/Plus/SE/II
1MB Macintosh	Plus/SE/II

EDUCATION/FAMILY PRODUCTIVITY

Learning With LogoWriter, Home Edition

SYSTEM REQUIREMENTS: 128K Apple*, 256K IBM PC; Color monitor recommended. Printer optional. 5.25- and 3.5-inch disks

PUBLISHER: Logo Computer Systems, Inc., 3300 Côte Vertu, Suite 201, Montreal, Quebec, Canada, H4R 2B7; (800) 321-LOGO, (514) 331-7090

PRICE: \$99

PUBLISHER'S SUGGESTED AGES: 7-adult

COPY PROTECTED: No

OVERALL RATING: ★★★★★

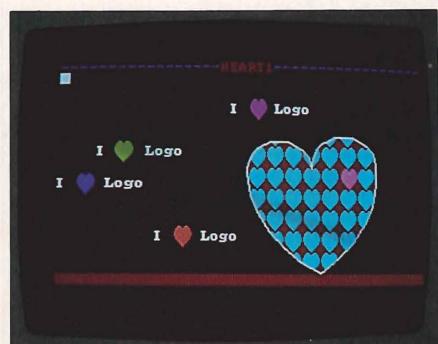
DOCUMENTATION: ★★★★

ERROR HANDLING: ★★★★★

GRAPHICS QUALITY: ★★★★★

EASE OF USE: ★★★★★

Logo, a popular computer language, introduces young children to programming in creative, unintimidating ways. Kids get to write procedures that generate animated graphics, geometric designs, sounds, and personal messages while strengthening their math and verbal skills at the same time. *Learning with LogoWriter* is a version of Logo designed especially for the home market. The product is made by the same compa-



Kids at home can learn to love Logo now that the home edition of LogoWriter is available.

FAMILY COMPUTING

ny that developed *Apple Logo* for Apple Computer, Inc., and *LEGO TC Logo* for LEGO Systems, Inc. *Learning with LogoWriter* is a full-range Logo programmer, incorporating many word-processing and graphic features found in the powerful *LogoWriter* school edition. The home edition will appeal even to the computer neophyte because the well-written manuals scale down the language's technical programming aspects.

Learning with LogoWriter contains everything kids need to begin Logo programming. The disk includes two sample files that demonstrate several Logo procedural techniques. There's a tutorial to introduce the turtle, a cursor which is similar to a paintbrush icon in a drawing program. It describes some of the more frequently used *LogoWriter* commands (including forward, right, left, back, clear graphics, pen up, pen down, fill, repeat) and teaches children to draw a five-pointed star, vary the turtle's color with the Setcolor command, fill a shape or a whole screen with a color, and use the pen up/pen down commands to generate dotted lines.

The disk also contains a Shapes page with 25 graphic elements for use as turtle substitutes. Programmers can create new shapes for the turtle to wear using the built-in pixel-by-pixel shape editor. These can be saved to disk and written into procedures. A Help file offers a summary of page, color, and shape commands, and a laminated keyboard chart is a handy quick reference. The card highlights the locations and functions of several *LogoWriter* key commands.

LogoWriter manuals are easy to follow. *Introducing LogoWriter* contains 14 chapters of step-by-step programming guidelines. As youngsters work through the exercises, they learn how to create a scrapbook disk (for saving graphics, text, and procedures), print text with graphics, draw with the turtle, define procedures, make the computer play music, plan a picture of a street that includes buildings, a road, and scenery, and much more. The Quick Reference guide offers a summary of *LogoWriter*'s special keys and key combinations, programmable control keys, *LogoWriter* commands, and some troubleshooting tips.

LogoWriter is a tool for using the computer in many different ways. When kids experiment with its numerous procedures, they bubble with excitement, each trying to come up with the most "awesome" procedure for public approval. In the beginning, their creations may not be elegant, but as their math skills develop and they become more familiar with the *LogoWriter* commands, you will see them generate sophisticated graphic designs. *Learning with LogoWriter* lets them bring that computer experience into the home. It's an opportunity that should not be missed.

— CAROL S. HOLZBERG

College Explorer

SYSTEM REQUIREMENTS: 128K Apple, 256K IBM PC* 5.25- and 3.5-inch disks. Printer recommended

PUBLISHER: The College Board Publications, Dept. P06, Box 886, New York, NY 10101-0886; (212) 713-8000

PRICE: \$50

PUBLISHER'S SUGGESTED AGES: 15-adult

COPY PROTECTED: No

OVERALL PERFORMANCE: ★ ★ ★ ★

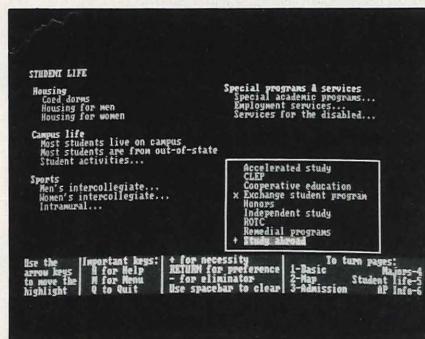
DOCUMENTATION: ★ ★ ★

ERROR HANDLING: ★ ★ ★ ★

GRAPHICS QUALITY: N/A

EASE OF USE: ★ ★ ★ ★

Any parent who has helped a son or daughter search for the right college to attend knows that the selection process can cause teenagers a lot of anxiety. It's a decision that can tremendously affect their future. Having gone through the process with three kids, I've learned that it doesn't get much easier with experience, but tools like *College Explorer* can provide some help.



Students can create a profile of their preferences for things such as housing, sports, and academics in the Student Life Page of College Explorer.

College Explorer is a vastly expanded and revised version of the program originally published by The College Board in 1983. It allows prospective college students to search a database of 2,800 two-year and four-year colleges by setting parameters based on majors, geographical area, school size, tuition, financial aid, SAT/ACT scores, housing, sports, religious affiliations, Advanced-Placement policies, special programs and services, current freshman profiles, and many other criteria. Knowing that it's from The College Board makes me confident that the information provided is credible.

My youngest daughter, Jill, a high-school freshman, has a fair understanding of how to go about selecting a college, and knows the course requirements she will have to fulfill. Since her interests, at present, are in the

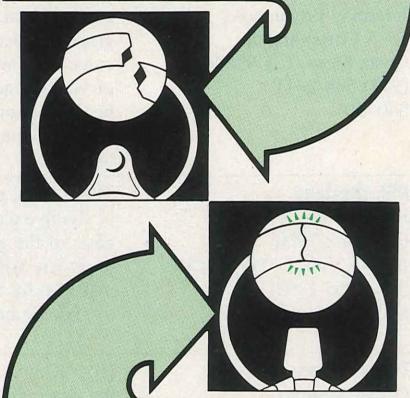
**She lost that
big client when her
ring binder got...**



GAPiTIS!

THE SYMPTOMS

Loose, tearing or hard-to-turn pages caused by GAPiTIS (the clinical term for those hideous gaps in ring binder rings).



THE CURE

Only a patented DublLock Ring Binder from Wilson Jones can lock both outer rings tight to keep pages neatly in place!

Dial 1-800-952-4637

Toll-Free for the DublLock office products retailer nearest you and your...

FREE
CATALOG!

Wilson Jones

DUBLLOCK[®]
RING BINDERS

The only cure for GAPiTIS!

CIRCLE READER SERVICE 69

FAMILY COMPUTING

CAPSULE REVIEWS

EDUCATION/FAMILY PRODUCTIVITY

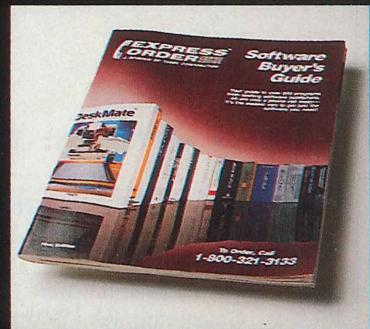
TITLE/PUBLISHER PRICE	SUMMARY	SYSTEM REQUIREMENTS	RATINGS					
			CP	O	D	EH	GQ	EU
Neurobics Ocean Isle Software Ocean Isle Sq. Building 3 Ocean Isle Beach, NC 28459 (800) 882-8664 \$45	An aerobics class for the mind. Seven mind-bending exercises encourage creativity and help improve memory and problem-solving skills. Simple but pleasing graphics include some still-frame animation, and you may customize options to adjust the level of difficulty. My children found the games hypnotic.	256K IBM PC w/DOS 2.11 or higher. 5.25- or 3.5-inch disks.	N	★	★	★	★	★
	—Tan Summers			★	★	★	★	★
Writing Skills Improvement Program Optimum Resource Inc. 10 Station Place Norfolk, CT 06058 (203) 542-5553 \$60	Designed for young adults who are motivated to improve their writing, this drill-and-practice program tests and evaluates word usage, subject and verb agreement, and other fundamentals of grammar. <i>The Little, Brown Handbook</i> is included and serves as a study guide for the lessons. Effective for SAT preparation but lacks the bells and whistles to keep younger students interested.	128K IBM PC. 5.25- and 3.5-inch disks.	N	★	★	★	N/A	★
	—Marlene Bumgarner Eltgroth			★	★	★	★	★

ENTERTAINMENT

TITLE/PUBLISHER PRICE	SUMMARY	SYSTEM REQUIREMENTS	RATINGS					
			CP	O	D	PS	GQ	EU
Battletech: The Crescent Hawk's Inception Infocom 125 Cambridge Park Dr. Cambridge, MA 02140 (617) 492-6000 \$50	Train to become a BattleMech Warrior so that you can defend your planet from invasion and destruction. You control the gladiatorial robots who do the fighting in the 31st century. It takes a while to complete the less-than-exciting training, but patience and a good imagination will keep you going until the real action begins.	512K Amiga, 256K IBM PC*. CGA. 5.25- and 3.5-inch disks (IBM).	Y	★	★	★	★	★
	—Adam Sherwin			★	★	★	★	★
Neuromancer Interplay Productions 1575 Corporate Dr. Costa Mesa, CA 92626 (714) 549-2411 \$40-50	Based on a novel by William Gibson. You play the part of a space cowboy in this morbidly humorous graphic adventure. Your computer-hacking skills come in handy as you attempt to discover why many of your friends have suddenly disappeared. Play can be cumbersome at times and your options limited, but the game is amusing and may tempt you to read the book.	512K Amiga, 128K Apple*, C 64.	N	★	★	★	★	★
	—Damon Osgood			★	★	★	★	★
P51 Mustang Bullseye Software P.O. Box 7900 Incline Village, NV 89450 (702) 265-2298 \$60	The manual provides good directions for all aspects of flying except those related to combat (which is the basis of the game). Instant replay, which allows you to review your last flight from 13 angles, does not make up for flat, uninspired graphics. Ability for two to play via hard-wired machines, but why bother?	1MB Macintosh. Joystick optional.	Y	★	★	★	★	★
	—Damian Roskill			★	★	★	★	★
Times of Lore Origin Systems 136 Harvey Rd. Londonderry, NH 03053 (603) 644-3360 \$40	High King Valwyn of Albareth is missing, along with the peace his presence brought to the land. Choose the persona of Knight, Valkyrie, or Barbarian to search high and low for glory and adventure. Most of the game is real-time hack-and-slash that leaves me without any sense of accomplishment, but <i>Times of Lore</i> has enough twists and turns to make it a good rainy-day game.	64K Apple*, C 64, 256K IBM PC. CGA, EGA, MCGA, or Hercules. 5.25- or 3.5-inch disks (IBM). Joystick recommended.	Y	★	★	★	★	★
	—Damon Osgood			★	★	★	★	★
Zoom Discovery Software 163 Conduit St. Annapolis, MD 21401 (301) 268-9877 \$30	Complete grids by outlining each square while avoiding black holes and other obstacles. One or two players take turns or join forces to advance through the 50 challenging screens. Excellent graphics and the ability to team up against the computer make <i>Zoom</i> well worth your while.	512K Amiga, C 64, 256K IBM PC*. CGA, EGA, VGA, or MCGA. 5.25- and 3.5-inch disks (IBM). Joystick recommended.	Y	★	★	★	★	★
	—Daniel Farkas			★	★	★	★	★
4th and Inches Team Construction Disk Accolade, Inc. 550 S. Winchester Blvd. #200 San Jose, CA 95128 (408) 985-1700 \$15	<i>The Construction Disk</i> allows you to modify any existing <i>4th & Inches</i> team or assemble a squad of your own creation by entering the name, height, weight, and attributes (such as quickness, strength, and toughness) of each player. Good supplement for football fans who believe these options should have been built into the original program.	512K Amiga, 512K Apple IIgs, C 64, 256K IBM PC*. CGA, EGA, or VGA. 5.25- or 3.5-inch disks (IBM). Joystick recommended.	Y	★	★	N/A	N/A	★
	—Rob Gilpin			★	★	★	★	★

Rating Key: CP Copy Protected, yes or no; O Overall Performance; D Documentation; EH Error Handling; PS Play System; GQ Graphics Quality; EU Ease of Use; O Poor; ★ Average; ★★ Good; ★★★ Very Good; ★★★★ Excellent; N/A Not applicable; *Computer Used for Review

DISCOVER A WORLD OF SOFTWARE



In the New *EXPRESS ORDER* Buyer's Guide.
Over 850 programs...just a phone call away.

Say hello to a new way to buy software. Express Order is the convenient new distribution system for today's most popular programs.

Choose from the broad range of MS-DOS®, XENIX® and MS® OS/2 programs listed in our free 84-page guide. Then call our toll-free number and your software will be sent

directly to your office or home—freight prepaid!

Express Order is both convenient and affordable. Our prices are often 10 to 30% less than the manufacturer's suggested retail price.

Call anytime from 8 am to 10 pm (CST) for your free Express Order Buyer's Guide. Discover a world of software!

Call today for your free copy.

1-800-321-3133

EXPRESS ORDERSM
A DIVISION OF TANDY CORPORATION

areas of marine biology, environmental sciences, and photojournalism, she was delighted to search for majors and admission requirements based on these interests. She did several searches highlighting different interests and saved each profile. To Jill's surprise, she couldn't find any schools combining all of her interests.

College Explorer is simple to use, menu driven, and includes help throughout. Little time is required to learn the program, allowing for almost immediate immersion in the college-selection process. Previous college-selection programs were not as easy to use.

College Explorer is great for what-if scenarios and provides complete descriptions of colleges down to the most obscure details. Individual profiles can be printed for comparison. If a student is considering a specific school not listed by the program, it's probably not listed by the U.S. Office of Education as accredited.

Parents, students, and school guidance counselors will all appreciate *College Explorer*. I only hope yearly updates are provided, at least through 2001, when Jonathan, my 5-year-old, will enter college.

—JUDITH ZORNBERG

ENTERTAINMENT

Guardians of Infinity: To Save Kennedy

SYSTEM REQUIREMENTS: 512K IBM PC; CGA, EGA, or VGA optional; 5.25- or 3.5-inch disks

PUBLISHER: Paragon Software Corp., 600 Rugh St., Greensburg, PA 15601; (412) 838-1166

PRICE: \$45

COPY PROTECTED: No

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★ ★ ★ ★

PLAY SYSTEM: ★ ★ ★ ★

GRAPHICS QUALITY: ★ ★

EASE OF USE: ★ ★ ★

Have you ever wondered what it would be like to go back in time and change the course of history? Well, here's your chance.

The story behind *Guardians of Infinity* is a bit complicated. The year is 2087, and changes in the space-time continuum have placed all of mankind in danger. In this text adventure, you play the part of Adam Cooper, a 21st-century physicist and inventor of a time-travel machine, who has traced the cause of the crisis back to the assassination of President John F. Kennedy. Apparently, his murder was committed by someone from the 21st century who went back in time.

Your mission, should you choose to accept it, is to go back to 1963 with a team of five



The optional slide show enables you to meet Kennedy face-to-face.

agents and prevent the assassination. This is not as simple as it may seem. You have one week to send your agents across the United States to talk to Kennedy's family, friends, and associates and convince them that his life is in danger. If you succeed, your reward is a meeting with the president himself.

Guardians of Infinity revolves around two books that are included in the package. A 90-page mini novel gives you background information about the crisis, while the mission manual includes profiles of your agents, lists of people involved in either the Kennedy administration or the assassination, and the daily schedules of key figures. Time-consuming research and planning with these documents is required before you begin play if you hope to avert tragedy.

This intelligently designed adventure has a large vocabulary and will accept complete sentences or fragments. In addition, each agent has his or her own characteristics that must be taken into account when giving out assignments. These features make *Guardians of Infinity* an entertaining challenge for people who don't need graphic images to spark their imaginations.

—STEVE WILLIAMS

JetFighter: The Adventure

SYSTEM REQUIREMENTS: 512K IBM PC; CGA, EGA, or VGA; 5.25- or 3.5-inch disks

PUBLISHER: Velocity Development, P.O. Box 875, Palatine, IL 60078; (312) 991-0594

PRICE: \$50

COPY PROTECTED: Yes

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★ ★ ★

PLAY SYSTEM: ★ ★ ★

GRAPHICS QUALITY: ★ ★ ★ ★

EASE OF USE: ★ ★ ★

If 1988 was a year of revolutionary breakthroughs in both the graphics and game design of flight and combat simulations (*F-19 Stealth Fighter*, *Battlehawks 1942*, *Falcon*

AT and *Flight Simulator v3.0*), then 1989 looks even more promising. *JetFighter: The Adventure*, Velocity Development's entry into the 3-D flight combat simulation genre, is a spectacular example of how far PC graphics have come. And if you can get past the difficult flight tests you must pass to qualify as an F-14, F-16, or F-18 fighter pilot (I couldn't, but more on that later), there's probably a good adventure waiting for you.

Two facets of the software make *JetFighter* stand out from the pack: the incredibly fluid graphics, and the story line. *JetFighter* is not just isolated exercises, it's a full story in which each mission is an episode in the plot. (In fact, *JetFighter* is the first in an ongoing adventure series.)

The story is set in the near future on the west coast of the United States. International



This will become a familiar scene due to the difficulty of the flight tests.

drug runners from Central and South America have used their immense reserves of cash to finance an armory large enough to threaten major nations. The United States responds by forming a top-secret paramilitary unit to combat the terrorists.

To join this unit, you must intercept an airborne drone, practice bombing runs, engage in a mock dogfight with your instructor, and ultimately, take off from the carrier *Constellation* and land four times in choppy seas. Two landings are at day and two are at night, and unless you attempt all of them, you can't begin the adventure. Presumably, the outcome of each episode—or mission—affects the course of the story.

I'm a pretty good combat-simulation pilot. I'm a full-bird colonel in *F-19*, and a Congressional Medal of Honor winner in *Gunsight*, and have flown dozens of successful missions in *Battlehawks*. I spent many hours lining up my Tomcat for landings on the *Constellation*, but I couldn't land successfully (lots of emergency takeoffs, lots of ditching, and lots of crashes). I couldn't get the arrester hook to catch the cables and stop my plane, and therefore, I never qualified as a pilot in this mysterious adventure. I consider this a flaw in the game—that it's too difficult to get started. But I also accept that I should probably return to flight school. →



FREE GIFTS!

Order the Hottest Hits in Computer Entertainment from Triton—
by Phone or Mail—and Choose a Quartz Wristwatch
... FM Radio with Headphones ... Solar Calculator or Other Great
Gifts. FREE with Minimum Purchase. See Page A-5 for Gift Selection.

TRITON'S TOP 10

ACTION/ ARCADE

When it comes to action, Triton's got what's hot. Get hours of true arcade excitement with these 10 top action hits. At a great price!

1-800-227-6900
ORDER NOW—TOLL FREE!

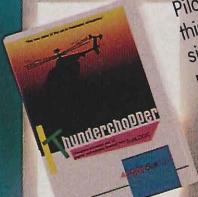
Rocket Ranger—Cinemaware



Save the world from goose-stepping space aliens! Arcade-quality graphics and animation, original music and digitized sounds. Brings back the thrills of classic Saturday morning serials.

Commodore 64/128
Apple IIgs
MS-DOS
JT-1236
JT-1058
JT-1235
\$29.95
\$42.95
\$42.95

Thunder Chopper—Action Soft



Pilot the chopper of the future in this state-of-the-art high-action simulation. Advanced instrumentation and an armament to match. Training and exploration, rescue operations and combat missions will fine tune your skills.

Commodore 64/128
Apple II
JT-1057
JT-1056
\$24.95
\$24.95

Wings of Fury—Broderbund



You're both hunter and hunted in your carrier-based F6F Hellcat. You're in the middle of dogfights, search-and-destroy missions and air-to-sea combat. Fast-scrolling animation, joystick-gripping excitement.

Apple II
JT-1059
\$29.95

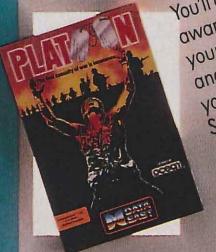


The Last Ninja—Activision

Fight to avenge the Brotherhood. Become a master of Ninja magic. Ninja weapons, Ninja wisdom. Set against a backdrop of 6 landscapes that will take your breath away—if you live to see them.

Commodore 64/128
Apple IIgs
Apple II
MS-DOS
JT-LABQ
JT-1717
JT-LADQ
JT-LAFQ
\$29.95
\$39.95
\$29.95
\$34.95

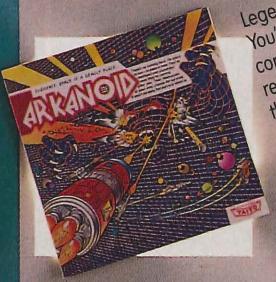
Platoon—Data East



You'll get all the impact of the award-winning film. You'll lead your men against guerillas and armed patrols. But can you win? In a war-torn Southeast Asia, against all odds, just surviving is enough.

Commodore 64/128
Apple II
MS-DOS
JT-1696
JT-1697
JT-1698
\$24.95
\$29.95
\$34.95

Arkanoid—Taito



Legendary arcade hit. You'll need perfect concentration and reflexes to break through 33 walls of living energy and confront the destroyer of the universe.

Commodore 64/128
Apple IIgs
Apple II
MS-DOS
JT-1052
JT-1051
JT-1050
JT-1049
\$24.95
\$29.95
\$24.95
\$29.95

Rampage—Activision

Go ahead. Lose your temper. Go on a RAMPAGE. The arcade smash—and we do mean smash—comes home. With three mischievous monsters to control and dozens of cities to turn to total trash, you are in power.



Commodore 64/128
Apple II
MS-DOS
JT-1716
JT-1217
JT-LBEJ
\$29.95
\$29.95
\$34.95

Barbarian—Melbourne House/Psygnosis

Your quest: Destroy the lair of the gruesome, death-dealing monster Necron. Your prize: The kingdom's crown. Frenzied attacks, hidden traps, barbaric action and adventure galore in a fearful underground realm.



Commodore 64/128
MS-DOS
JT-1055
JT-1054
\$24.95
\$34.95

Operation Wolf—Taito

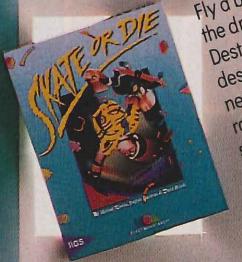
Worldwide #1 arcade hit. Mind-blowing graphics and sounds. With machine gun and grenades, you free desperate hostages. 6 hair-raising missions.



Commodore 64/128
JT-1053
\$29.95

Skate or Die—Electronic Arts

Fly a backside aerial. Shoot the drainpipe. "Skate and Destroy" through the baddest back-alley in the neighborhood. Even the stunts are radical and the action fast in this hip skateboarding hit.



Commodore 64/128
Apple IIgs
MS-DOS
JT-1060
JT-1061
JT-1062
\$24.95
\$34.95
\$29.95

TRITON'S TOP 10 ADVENTURE/ STRATEGY

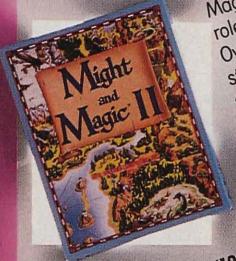
To challenge your skills... stimulate your imagination... and make your spine tingle, Triton has the adventure/strategy hits. Great prices, too!

FREE GIFTS!

SEE PAGE A-5.

**Might and Magic II—
New World Computing**

Magical sequel to a mighty role-playing fantasy hit! Over 250 animated monsters, advanced combat system, hundreds of weapons and items, 96 spells, 2 new character classes. Full-color map.



Commodore 64/128 JT-1243 \$34.95
Apple II JT-1876 \$42.95
MS-DOS JT-1242 \$42.95

Wizardry IV: Return of Werdna
—Sir Tech

Stunning role reversal marks this chapter in the acclaimed Wizardry fantasy role-playing series. You are Werdna, the fiendish wizard who returns for revenge from the 1st scenario. "Mindboggling!" —A+.



Apple II JT-1068 \$49.95
MS-DOS JT-1067 \$49.95

Joker Poker—Joker Software

Gambling game of skill and chance for family and friends —up to 90 players. Easy-to-use menus, automatic account management, on-screen rules and instructions. Poker has never been so much fun!



Commodore 64/128 JT-1074 \$24.95
Apple II JT-1073 \$34.95
MS-DOS JT-1072 \$34.95

**Might and Magic II—
New World Computing**

Magical sequel to a mighty role-playing fantasy hit! Over 250 animated monsters, advanced combat system, hundreds of weapons and items, 96 spells, 2 new character classes. Full-color map.

Commodore 64/128 JT-1243 \$34.95
Apple II JT-1876 \$42.95
MS-DOS JT-1242 \$42.95

Wizardry IV: Return of Werdna
—Sir Tech

Stunning role reversal marks this chapter in the acclaimed Wizardry fantasy role-playing series. You are Werdna, the fiendish wizard who returns for revenge from the 1st scenario. "Mindboggling!" —A+.



Apple II JT-1068 \$49.95
MS-DOS JT-1067 \$49.95

Joker Poker—Joker Software

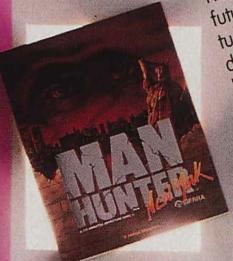
Gambling game of skill and chance for family and friends —up to 90 players. Easy-to-use menus, automatic account management, on-screen rules and instructions. Poker has never been so much fun!



Commodore 64/128 JT-1074 \$24.95
Apple II JT-1073 \$34.95
MS-DOS JT-1072 \$34.95

Manhunter, New York—Sierra

Horror and suspense in a futuristic animated adventure. Hired by an alien dictatorship to spy on humanity, you choose between good and evil. Unique command system, eerie visual effects.



Apple IIgs JT-1089 \$42.95
MS-DOS JT-1066 \$42.95

Tetris—Spectrum Holobyte

First-ever computer entertainment from the Soviet Union! A beautiful and compelling game that will develop your skill with 10 difficulty levels, and a replay last game option.



Commodore 64/128 JT-1071 \$19.95
Apple IIgs & Apple II JT-1070 \$34.95
MS-DOS JT-1069 \$29.95

Neuromancer—Interplay

Role-playing adventure from hit "Cyberpunk" novel by William Gibson. Soundtrack by DEVO! Hack through a shadowy underworld of technocriminals, into Cyberspace.



Commodore 64/128 JT-1788 \$34.95
Apple IIgs JT-1065 \$42.95
Apple II JT-1812 \$39.95
MS-DOS JT-1064 \$42.95

Zak McKracken—Lucasfilm

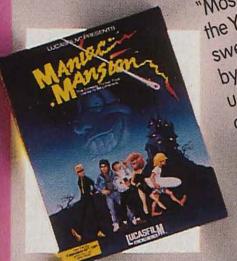
Can a seedy tabloid reporter foil an alien plot to turn our brains to mush? Zak McKracken can—with your help. Great 3D graphics, wild sounds and music, mysteries and laughs galore from Lucasfilm Games.



Commodore 64/128 JT-1778 \$29.95
MS-DOS JT-1570 \$39.95

Maniac Mansion—Lucasfilm

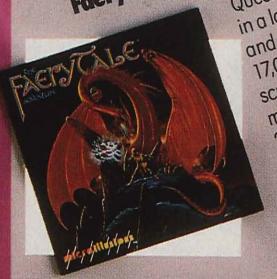
"Most Innovative Game of the Year." When a friend's sweetheart gets kidnapped by a mad scientist, round up your rescue team and head for the creepy Maniac Mansion. Madcap mystery and adventure!



Commodore 64/128 JT-LAPP \$29.95
Apple II JT-LADP \$29.95
MS-DOS JT-1579 \$39.95

Faery Tale Adventure—Microllusions

Quest with three brothers in a land of dragons and wizards. Over 17,000 surface screens of caverns, mazes and forests. 2000 underground screens. Great graphics, music.



Commodore 64/128 JT-LBAG \$42.95
MS-DOS JT-LBEG \$44.95

Battletech—InfoCom

Exciting battle action in an animated role-playing adventure. Detailed story and setting with over 4 million locations. Plan and execute intergalactic war tactics. Full-color poster included.



Commodore 64/128 JT-1229 \$34.95
Apple II JT-1063 \$42.95
MS-DOS JT-1225 \$42.95

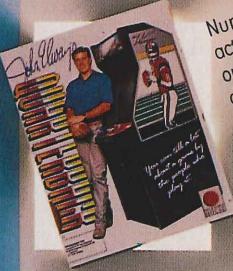
TRITON'S TOP 10 SPORTS AND SIMULATIONS

On the sports field and battlefield, behind the wheel and in the cockpit... Triton puts you there with 10 sports and simulation winners.

1-800-227-6900
ORDER NOW—TOLL FREE!

**John Elway's Quarterback—
Melbourne House**

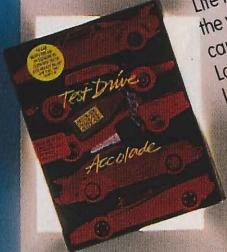
Number 1 arcade football action comes home. Developed under Elway's own direction, so you know you're playing with the best. Big-league action, big-league strategy challenge. For 1 or 2 players.



Commodore 64/128 JT-1078 \$24.95
Apple II JT-1077 \$24.95
MS-DOS JT-1076 \$24.95

Test Drive—Accolade

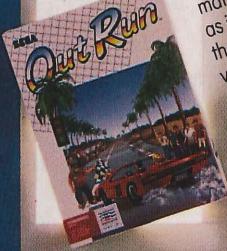
Life in the fast lane! Get behind the wheel of the world's hottest cars—Ferrari Testarossa, Lotus Turbo Esprit, Lamborghini, Porsche, and Corvette. "An exercise in clenched teeth and sweaty palms." —N.Y. Times.



Commodore 64/128 JT-1081 \$24.95
Apple II JT-1080 \$29.95
MS-DOS JT-LQHB \$34.95

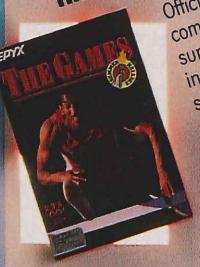
Out Run—Sega

Hot car, hot music, hot date. And man, the scenery looks great as it whizzes by. You're King of the Road in this computer version of the blockbuster arcade hit. Put it to the floor!



Commodore 64/128 JT-1251 \$29.95
MS-DOS JT-1079 \$34.95

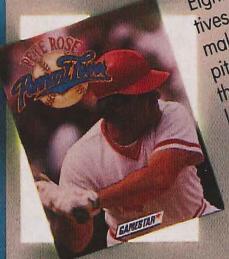
The Games: Summer Edition—Epyx



Official U.S. Olympic Committee computer version of the summer games. 8 events, including hurdles, pole vault, sprint cycling, archery. 1st-person views, dramatic camera angles, exciting sounds. 1 or multiple players.

Commodore 64/128 JT-1218 \$34.95
Apple II JT-1219 \$42.95
MS-DOS JT-1220 \$42.95

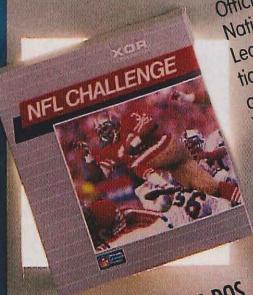
**Pete Rose Pennant Fever—
Gamestar**



Eight TV-camera perspectives put you on the field, making the plays. Complete pitching control, behind-the-plate view for hitting, league play and great strategic depth. Catch the fever!

Commodore 64/128 JT-1075 \$29.95
MS-DOS JT-1569 \$39.95

NFL Challenge—XOR



Officially licensed National Football League ultimate authentic pro football action and strategic depth. "The finest computer sports game I've ever seen." —Computer Gaming World.

MS-DOS JT-LOBX \$79.95

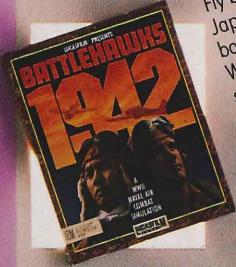
Falcon—Spectrum Holobyte

This one's a triple award-winner. Best Simulation, Best Technical Achievement, and Best Action/Strategy Game. Unsurpassed realism in combat flight simulation. Dogfight and strike mission modes.



MS-DOS JT-1082 \$42.95

Battlehawks 1942—Lucasfilm



Fly both American and Japanese fighters and bombers in this authentic WWII naval air combat simulation. Thrilling pounding action, heart-rending sequences.

MS-DOS JT-1571 \$42.95

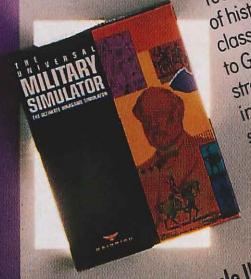
Jet—Sub Logic



Take off for F-16 or F-18 airstrike/dogfight action. Realistic flight simulation, aerial combat, AGM and air-to-air missiles, search radar, auto target tracking, emergency ejection—and more.

Commodore 64/128 JT-1084 \$34.95
Apple II JT-1083 \$34.95
MS-DOS JT-1620 \$44.95

**Universal Military Simulator—
Rainbird**



You can change the course of history as you re-enact classic battles, from Waterloo to Gettysburg. Military strategy comes to life in 3D simulation.

Apple IIcs JT-1861 \$42.95
MS-DOS JT-1572 \$42.95

It's tough to base a review on incomplete information, but what I can tell you is this: *JetFighter*'s graphics and simulations are in a class all by themselves, particularly for an IBM PC game. Although I missed the adventure aspect of the game, I spent many pleasure-filled hours flying around the Bay Area. The preliminaries of this game aren't lacking in fun.

The game uses an animation technique called Dinnerman technology: It refreshes the on-screen graphics so quickly and moves your plane through the air so smoothly that it feels as if you're watching a movie, even on a relatively slow IBM AT. Neither *F-19* nor *Battlehawks* can make this claim. As I tried to line up my plane for my ill-fated carrier-landing attempts, I was struck by how the

plane seemed to sway back and forth realistically as it slowed in preparation for impact. I kept flashing back to the carrier landings in *Top Gun*.

You can place a camera outside the plane while you fly, and then rotate the camera in 360-degree pans around the plane (you can also rotate your perspective within the cockpit). This capability not only adds more drama to the experience, but lets you watch yourself take off and land, practice Immelmanns, yo-yos, and other maneuvers with a clearer picture of what these top-gun moves are all about.

The simulation aspects of the plane are first-rate. *JetFighter* is like *Battlehawks* in that it exchanges minute detail for better play, but the heads-up display is accurate, as

are the flight characteristics of each plane. Next time the Navy tangles with some Libyan MiGs, you'll understand what the pilots experience. In fact, the game uses artificial intelligence to model enemy skills to varying degrees (depending on episode and scenario). As my instructor flashed overhead in an F-5 Tiger—and I mean flashed—I believed that a real person was in that plane.

The manual is designed to be a training log and situation backgrounder, but it feels a bit skimpy and weak. But don't let that hold you back. And don't let my poor showing in the training exercises discourage you; this is a world-class PC flight simulator with a unique narrative twist. As soon as I finish this review, I'm heading back to the flight deck and reporting for duty. —ROBERT GEHORSAM

Entertainment News and Hints

The Latest Scoop on Games

BY JIM PHELAN



BENEATH THE SURFACE.

Learn the basics of diving without getting wet. *MacScuba* (1MB Macintosh; \$50), Paradise Software's diving simulation, has you searching for sunken treasure while

fending off sharks. Other dangers exist underwater, so use the buoyancy-control device to ensure proper decompression. Diving skills will also come in handy as you *Search for the Titanic* (128K Apple, C 64, 256K IBM PC; \$35 to \$40). Consult maps, charts, and weather reports to find the ship among the 75 wrecks Capstone Software has scattered about the ocean floor. Other aquatic amusements include Epyx's *Undersea Commando* (512K Amiga, 512K Apple IIGS, 512K Atari ST, C 64, 512K IBM PC, 512K Macintosh; \$30 to \$50), an arcade game in which you attempt to destroy enemy spies, and Electronic Arts's *688 Attack Sub* (384K IBM PC; \$50), a simulation where you command a U.S. 688 or Soviet Alfa submarine on 10 missions around the globe. Demo disks of *688* are now being given away with boxes of Maxell disks, a clever marketing approach we'll probably see more of in the future.

DRIVER'S SEAT. Top Ten Software has you racing through forests and over mountains behind the wheel of a 300HP sports car in the *Lombard RAC Rally* (512K Amiga, 512K Atari ST, 512K IBM PC; \$40). Another



Witness the accuracy of your torpedoes in 688 Attack Sub.

auto-racing simulator is Titus's *F40 Pursuit Simulator* (512K Amiga, 512K Atari ST, 256K IBM PC; \$45). Instead of going over the hills and through the woods, you compete against police cars on a three-lane highway. If you're not satisfied with just one mode of transportation, you may want to check out *Action Fighter* (512K Amiga, 512K Atari ST, C 64, 512K IBM PC; \$30 to \$40), a conversion of an arcade game from Sega of America that Mindscape will distribute. It includes five missions to complete on a motorcycle that can be transformed into a car or airplane (if you can find the parts).

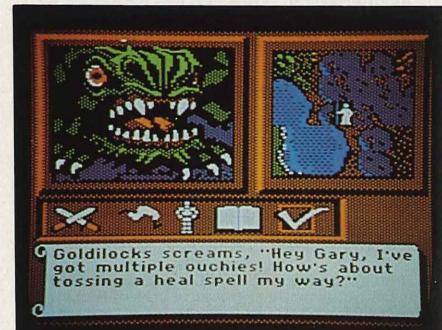
BIG BIRDS. The *Airplane Factory* (256K IBM PC; \$23) from Electronic Arts gets more mileage from an old favorite—*Chuck Yeager's Advanced Flight Trainer*. The Fac-

tory lets you modify existing planes you've flown in the past, or fly your own creations. Taito Software's *Alcon* (512K Atari ST, C64, 512K IBM PC; \$30 to \$40) puts you on a bombing mission over the planet Orac in a SW475 armed with the latest laser weaponry. Too bad you can't pull a squadron of made-to-order jets from the *Factory* to help you defeat the aliens. This August, *Mystery on the Concorde* will intrigue pilots and whodunit fans who own Apples, Commodores, or IBM PCs. It is rumored that Capstone Software will entice you to play its graphic adventure with a grand prize of a trip on the Concorde for the person who solves it.

ROLE-PLAYING ASSORTMENT. New World Computing has acquired the rights to produce a computer version of Flying Buffalo, Inc.'s popular paper-and-pencil fantasy role-playing game (FRPG), *Tunnels and Trolls*. Solo or group play will probably be options in the program, which should be available in December for Apples, Commodores, and IBM PCs. *Psychic War* (256K IBM PC; \$45) is an FRPG set in outer space. The enemy is about to activate the psychic wave that will destroy your own empire. You must form a psychic network with seven of your allies to prevent this from happening. Kyodai Software Marketing's game of psychic teamwork may not be farfetched if you imagine the Star Wars defense system looming overhead. Origin has taken a departure from its line of FRPGs with *Tangled Tales* (64K Apple, C 64, 256K

IBM PC; \$30). This humorous approach to the genre is an icon-based game in which you are a wizard's apprentice given three tasks. Along the way you encounter eccentric characters with whom you must converse to gather information. Origin's recent Triad of Evil promotion (*Ultima I-III: 64K Apple, C 64, 256K IBM PC; \$60*) may be matched by Sir-Tech Software. Keep your eyes open for a bundling of the first three or four *Wizardry* scenarios.

RUNNING THE GAUNTLET. Mindscape's conversion of *Gauntlet* for the IBM PC (already available for Apple, Atari ST, C 64) coincides with the release of two new programs in the same vein. In Discovery Software's *Sceptre* (1MB Macintosh; \$50), you search through many levels of a haunted mansion for a stolen artifact whose absence has caused the world to enter into an extended period of darkness. The object of Epyx's version, *Curse Buster* (512K Amiga, 512K Atari ST, C 64, 256K IBM PC; \$30), is to negate an evil spell and fight your way



Tangled Tales is not for those who take their role-playing seriously.

through 100 levels of a maze to safety. Epyx made an attempt at equal representation with a version for Princesses as well as one for Princes (both included). Despite the predominance of male and neuter monsters, this is a step in the right direction.

AROUND THE WORLD. As mayor and city planner of Maxis Software's *SimCity* (1MB Amiga, C 64, 512K Macintosh; \$30 to \$50), it's your job to balance the budget, zone land, overcome natural disasters, and keep a lid on crime. You can design your own city or use any of eight prebuilt cities on the verge of disaster, including San Francisco before the great quake, Tokyo before a monster attack, and Boston before a nuclear meltdown. An IBM version is scheduled for release in fall. California Dreams has released *Mancala* (512K Apple IIGS, C 64; \$30 to \$40) based on a game played throughout Africa for hundreds of years. In this strategy game, one or two players move stones among 12 cups. Don't let the description fool

you; you can master the intricacies of *Mancala* only after repeated play (which is true of most strategy games).

GAME HINTS

Manhunter: New York (Sierra On-Line, Inc.)

As a detective, your job is to report the movements of subversive New Yorkers to the aliens who control the city in this graphic adventure.

- ★ The arcade game is more than it appears.
- ★ Phil is a good cook.
- ★ The kewpie dolls love to play baseball.
- ★ Pay attention to tattoos.
- ★ The data card tells all.

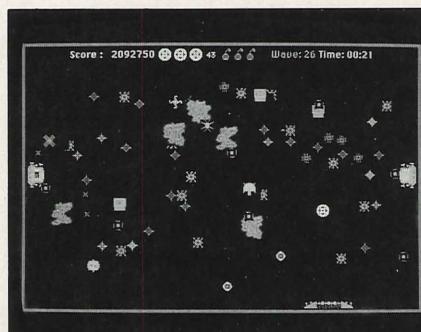


- ★ Don't forget to visit Bellevue Hospital.
- ★ The crowbar can be used in many situations.
- ★ The medallion will entrance some of your enemies.

—JEFFREY MIELCARZ & STANLEY DOBEK
Bristol, Connecticut

Crystal Quest (Casady & Greene, Inc.). Collect all the crystals on the screen before advancing to the next level in this *Robotron*-like arcade game.

- ★ Make sure you're moving slowly before you set off a smart bomb.
- ★ Menaces become easy targets when they stop moving to fire their laser beams.
- ★ Capture the large crystals while they are still being formed near the entrance gates.
- ★ Let the Zarklephasers live; their movement slows down the game considerably.



★ When being chased by a Parasite, fire a slow shot and maneuver behind it to lure the Parasite to its death.

★ If you mistakenly shoot a Shrapwarden, pause the game to decide which direction to move to avoid its lethal ring of bullets.

—TRAVIS WILLIAMS

North Vancouver, British Columbia

F-15 Strike Eagle (MicroProse Software, Inc.). Bomb one to three primary targets before returning to base in your high-tech F-15 aircraft. (Hints for IBM PC version.)

- ★ Fly at an altitude of 1,600 to 1,900 feet.
- ★ To increase your maximum velocity, drop your external fuel tanks when they weigh 13,455 pounds.
- ★ To conserve fuel, go to 100 percent RPMs and afterburner. When you stop acceler-



ating, cut back to 55 percent RPMs and glide until Mach 0.2.

★ Don't release a flare until the heat-seeking missile is within half a square of you on your radar screen.

★ To hit an air target with your 20mm cannon, you must be able to see the plane, not just the target-designator box.

★ To bomb ground targets, go to 2,100 feet at 80 percent RPM, nose down into a 10-degree dive, and release bombs as you pull up.

—PETER ZURICH

Montvale, New Jersey

SEND US YOUR HINTS— AND WIN A FREE GAME!

Don't miss the opportunity to share your original game hints and tips with other readers. Submit entries to Entertainment Editor, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. Include your name, address, telephone number, a short description of the game, and the brand and model of computer you own. If your tips are selected for publication, we'll award you a new game for your computer. We reserve the right to edit submissions for accuracy, clarity, and length. Unfortunately, we won't be able to acknowledge each submission. ■

HOME OFFICE SHOPPER

If You Are Looking For Ideas To Start A Business, Need Products Or Want Business Services,
Read The HOME OFFICE SHOPPER Every Month!

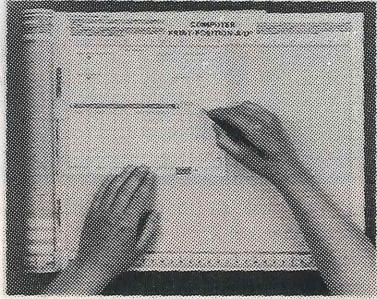
ACCESSORIES

The Print Position Aid is The Answer!

ESPECIALLY FOR ANYONE WANTING TO FILL OUT PRE-PRINTED OR PRE-DEFINED FORMS OR LAYOUTS

With the PPA anyone working on new tax forms • pre-printed health forms • pre-defined business forms • even layouts of their own design can locate line and column print positions quickly and easily.

FOR QUICK AND ACCURATE RESULTS ALL YOU DO IS JUST PLACE THE PROPER GRID OVERLAY OVER THE FORM OR LAYOUT YOU ARE WORKING ON. THEN TO FILL IN YOUR FORM SIMPLY MOVE YOUR CURSOR TO THE LINE AND COLUMN PRINTING SPACES SHOWN BY THE GRID LOCATIONS ON THE PPA OVERLAY. THE TEMPLATES ON THIS AID ARE ARRANGED SO THAT YOU WORK AGAINST A SOFT YELLOW "EASY ON THE EYES" BACKGROUND.



This easy to use Aid consists of 6 transparent 11 x 15 inch grid overlays accommodating printing needs of 10-12-15 characters per horizontal inch and 6 or 8 lines per vertical inch. These overlays provide PICA and MATRIX printing space bars for 5-6-8-8-17.7-17.1 and 20 CPI.

This positioning Aid is useful because when working with Computers - sooner or later line & column printing locations have to be determined...for example.

- After any design or modifying work has been done on a business form or report layout, the PPA is helpful in conducting a "quick check" on the accuracy of any paste up - form composition - or print spacing.
- Next, after a form/layout has been printed, the Aid is helpful in "proofing" the copy so that any necessary copy corrections can be made.

• Most importantly - with the PPA you control your own Printing Destiny."

THERE IS NO NEED to obtain and rely on special programs for your pre-printed form printing updates—

THERE IS NO NEED to go through the extra time and work to get the "correct grids" from your computer to over print on the pre-defined forms you're working on to help in finding the proper line and column print positions—

With the PPA the grid spacing is always there for you to use—all you do is read the answers from the grid readings and set your cursor directly to your form filling print locations.

One person covered the subject very well by simply saying... "the Print Position Aid is a very useful tool for me to have because it helps me in my work."

The PPA, which can be used with any printer is priced at \$49.95 plus \$3.90 shipping and handling.

To order just call - TOLL FREE 1-800-544-0837

In RI (call collect) 617-444-3833

Computing Aids, Inc., PO Box 227, Needham, MA 02192

LINERATES: \$25 net per line per month (3-line minimum). \$20 net extra per month for any/all bold print. Add \$25 extra for gray toned background. To calculate number of lines, count all characters including letters, spaces and punctuation and divide by 42 for normal face type, divide by 38 for capital letters, or divide by 35 for bold print.

DISPLAY RATES: \$250 net per column inch per month. Figure 10 lines maximum per column inch. To calculate number of lines, use same formula as for line ads but subtract 2 characters per line to leave space for a border on all sides.

TO ORDER: Send ad copy with check, money order or Visa/MC to Greg Rapport, Home Office Shopper, Home Office Computing, 730 Broadway, New York, NY 10003 or call 212-979-0728 (Monday-Friday 9:30AM-12:30PM and 1:30PM-5:30PM)

All ads must be prepaid by issue deadline. Publisher reserves right to reject any advertisement and is not liable for ads that are not published.

All ads must be accompanied by phone number and street address other than PO Box even if you do not want these to appear in the ad.

Start a profitable business cleaning computers. No investment or experience required. Free info. MAILMART, 4020-F5 Wyalong, Sac, CA 95826

MAKE MONEY WITH MICROCOMPUTERS
SUBSCRIBE TO COMPU-VENTURE.
SEND \$2./sample or \$12.00/6 issues. MSC,
Box 1039-F5, MT. Vernon, NY 10551

\$97,500 yearly "hidden in your computer?"
Yes! Free report
Simpson, 771C, Battle Ground, WA 98604-0771

DISCOVER THE OPPORTUNITIES
for information brokers, desktop publishers
and other information entrepreneurs. Trial
subscription, \$1. THE WHOLE WORK CATALOG,
Box 297HD, Boulder, CO 80306

SENSATIONAL OPPORTUNITY! F/PT-CONT. EMPLOY
GRD. FLOOR! UNIQUE MLM SVC! DETAILS:
\$1. FMJ, BOX 10696, OAKLAND, CA 94610

INFORMATION DOLLARS! Sell Information by
mail. Outstanding Home Business Computing Idea.
Earn up to \$3000/mo or more part time. FREE
details. InfoResources, 270 Curtin Ave., #H4, W.
W. Islip, NY 11795.

PERSONAL COMPUTER OWNERS CAN EARN \$1000 to \$5000
monthly selling simple services performed by
their computer. Work at home—in spare time. Get
FREE list of 100 best services to offer. Write:
A.I.M.Y.M., Box 60369, San Diego, CA 92106

MAKE MONEY WITH YOUR HOME COMPUTER!
New book describes hundreds of ideas and tips
NEVER SEEN IN PRINT BEFORE. Don't miss it!
FREE Info TODAY! InfoResources,
270 Curtin Ave. #H4A, W. Islip, NY 11795

Your BUSINESS OPPORTUNITY advertisement
could be seen by the
1 1/2 million entrepreneurs who read
HOME OFFICE COMPUTING MAGAZINE
every month!

You get a guaranteed 100% audience of the
fastest growing segment of buyers today.
Call 212-979-0728 today to place your ad.

START A HOMEBASED BUSINESS WITH YOUR PC
NEW RELEASE. Send name and address to
Autofax, 1009 NE 4th, Moore, OK 73160

EARN GOOD MONEY AT HOME!

Make profits while helping others recover lost
government refunds. Requires: IBM/Compatible,
hard disk and WordPerfect 4.2 or 5.0. Send
\$25.00 + \$1 shp (Check/MO) for 5 1/4" disk &
manual, or SASE for info to REFUND, PO Box 5042,
Woodridge, IL 60517 Please specify 4.2 or 5.0

\$\$\$ MAKE MONEY USING APPLEWORKS \$\$\$
Send \$2 & birthday to Benz Computing
38 Belton St., Stanhope, NJ 07874.

BIG MONEY AT HOME WITH YOUR COMPUTER
ALL NEW CTMS PROGRAM, FIRST RELEASE
SEND \$2.00 FOR COMPLETE PROGRAM OUT LINE
CTMS, 604 PHYLLIS, CONROE, TX 77303

FINANCIAL INDEPENDENCE!
Use your PC & modem to earn BIG money. Exciting
home based business. Send for FREE details.
Larry, 1088 Irvine Blvd. \$142, Tustin, CA 92680.

START ON-LINE BUSINESS Using Your PC/XT/AT

You can now place a database of services and goods
on-line using your PC, so your customers can dial into
your PC, access information, and make purchases via
modem.

Complete Kit (Software, database, & manual) \$495

Demo Diskette (Demo, database, & information) \$49

Send Check or Call in VISA/MC to Order

A-Comm Electronics, Inc. 377 Route 17 South,
Hasbrouck Hts, NJ 07604 (201) 288-7885

Modem Data Line (8/1/N) (201) 288-7792

HOME OFFICE SHOPPER

If You Are Looking For Ideas To Start A Business, Need Products Or Want Business Services, Read The HOME OFFICE SHOPPER Every Month!

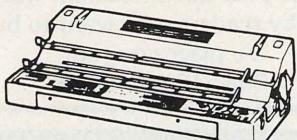
FREE INFORMATION

Easy steps to success in the home or office. Learn about books that will help you make money with computers.

COMPUTER PUBLISHING ENTERPRISES

Box 23478, Dept. FD-17
San Diego, CA 92123

Laser Toner Recharge



Start your own Recharge Business Full or Part time in this lucrative toner recharge industry

FOR ONLY \$49.50!

(s & h \$4., CA Res add 6.5% tax)

A complete training manual with over 40 details, photos & diagrams. We supply toner, supplies and support.

Call or Write Today

(818) 567-0078

24 HR

M & D International, Suite B
859 N. Hollywood Way
Burbank, CA 91505

CIRCLE READER SERVICE 1

BUSINESS SERVICES

FREE SAMPLES-Business Cards For Home & Office. 1000 Cards, Raised Print, Only... \$19.95! FREE UPS SHIPPING ANYWHERE IN THE U.S.! All Guaranteed! Rogers Publishing Dept. FC, PO Box 36042, Indianapolis, IN 46236. 1-317-823-6560

Advertising Material Promotional Literature

Well designed, high quality advertising material and promotional literature need not be expensive.

Mail, phone or FAX for a free brochure. Ask for our offer H-985.

Logo • Letterhead • Business Cards
Booklets • Brochures • Flyers
Catalogs • Direct Mail Packages
Display Advertising, including Yellow Pages
Trade Show Handouts • Newsletters
Directories • Pamphlets • Manuals
Graphic Design • Technical Illustration

Ad Designers, Inc.

1854 Lockhill-Selma, Ste 101
San Antonio, TX 78213
(512) 340-3945 ■ FAX (512) 340-0719

CIRCLE READER SERVICE 2

COMPUTER REPAIR

Repair your own Computer, Printer, Monitor, Keyboard and Disk Drives easily with our unique Repair Flowcharts for all machines. Free error code guide, cleaning guide and 5 1/4" head cleaning kit with your order. \$29.95. Computer Care, 3669 Grand Ave., Oakland, CA 94610

MAKE THOUSANDS!!

Repair PCs at home.

My flowchart system shows you how. \$15.00 ppd. J. Doerrer, 42 Orchard Ave, Emerson, NJ 07630

FAX MACHINES

DISCOUNT FAX MACHINES

NEW MACHINES WITH FACTORY WARRANTY

MURATA M1200	\$739	SHARP FO-300	\$1139
--------------	-------	--------------	--------

SHARP FO-220	\$969	SHARP FO-420	\$1279
--------------	-------	--------------	--------

Don't overpay for a new FAX machine, buy wholesale direct and save. Local Service and support available. SATISFACTION IS GUARANTEED CALL A FAX EXPERT AT MCS 800 669-1357 MN 612 831-4250



CIRCLE READER SERVICE 3

SHARP FAX FO-220

\$995⁰⁰

VISA/MC Accepted



FAXCO (504) 523-2346

HOME OFFICE COMPUTING

readers plan to spend over \$65 million for fax machines in the next year.

Show our buyers your products by advertising now
in this section of the HOME OFFICE SHOPPER.
Call 212-979-0728

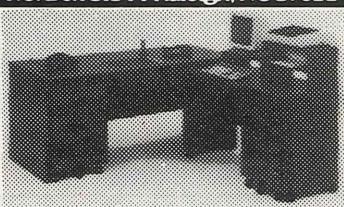
FURNITURE

HOME OFFICE COMPUTING

readers plan to spend over \$110 million for office furniture in the next 12 months. They are active purchasers and they will see your ad in this section of the HOME OFFICE SHOPPER.
Call 212-979-0728.

HOME WORKS

Quality Modular Computer Furniture For Your Home Or Home Office Low Discount Prices! Satisfaction Guaranteed!
P.O. Box 31544 Raleigh, NC 27622



For Information and Free Brochure Call Toll Free 1-800-544-4902

CIRCLE READER SERVICE 4

HARDWARE

FREE CATALOG FOR DISCOUNT COMPUTERS, LAPTOPS AND HARDWARE CALL: (213) 599-0327

MARYMAC INDUSTRIES INC.

Radio Shack SCO TANDY

Our 13th Year of DISCOUNTS COMPUTERS & CELLULAR PHONES

Fgt Prepaid. Save Tax

Toll Free 800-231-3680

22511 Katy Fwy

Houston, TX 77450

1-713-392-0747 FAX (713) 574-4567

Home Office Computing buyers spend almost \$5000.00 just to set up their home offices.

You can reach this budding sales market by placing your ad in the Home Office Shopper today
Call 212-979-0728

INSURANCE



SAFWARE

INSURES YOUR COMPUTER AGAINST POWER SURGE, BREAKAGE, THEFT

Full replacement of hardware, media, purchased software. From \$39 yearly. Covers fire, theft, power surges, other accidents. Blanket coverage: no list of equipment needed. Low \$50 deductible. Call for information or immediate coverage.

1-800-848-3469

Local (614) 262-0559

SAFWARE, The Insurance Agency Inc.
2929 N. High Street, P.O. Box 02211
Columbus, OH 43202

CIRCLE READER SERVICE 20

HOME OFFICE SHOPPER

If You Are Looking For Ideas To Start A Business, Need Products Or Want Business Services, Read The HOME OFFICE SHOPPER Every Month!

PAPER

Continuous
• **LETTERHEADS**
• PRINTED IN ANY COLOR
WITH YOUR LOGO
• on
• Classic Laid or Other Paper
250 at \$ 69.95
500 at 84.95
1000 at 109.95
• CALL TO ORDER •

1-800-322-2580 • In Michigan (313) 227-9401
FAX (313) 227-1750
The Experts • P.O. Box 928 • Brighton, MI 48116
WRITE FOR OUR
FREE
BROCHURE FEATURING
COLORED PAPER
LABELS, FILE & POST CARDS,
DISKS AND MUCH MORE!
FAST DELIVERY!
SATISFACTION GUARANTEED!

RIBBONS

AUTO-INKER

Re-ink any fabric cartridge or spool ribbon for about 5¢! Universal Cartridge model \$59.95. (specify printer) Ink included. Adapters for additional printers about \$4. Special inker for Imagewriter, Epson, others... \$39.95. Also, new **RIBBON RE-NEW** at \$3.95 ppd will re-ink 30 ribbons (no equipment needed). Ribbons & reloads available.

V-Tech, Inc., 2223 Rebecca, Hatfield, PA 19440. 215-822-2989

CUT RIBBON COSTS

Re-ink your printer ribbons quickly and easily. Do all cartridge ribbons with just one inker! For crisp, black professional print since 1982. Choose from 3 models.

Prices start at just \$39.50

BORG INDUSTRIES, Janesville, IA 50647
1000's satisfied users in 5 years!

Toll Free 800-553-2404/In Iowa 319-987-2976

CIRCLE READER SERVICE 15

SOFTWARE

PC BIBLE. Complete Bible text. Search, index, print, edit... Demo \$5. \$95 (KJV or NIV), both for \$145.00 + \$5 s/h. MD res add 5%. SCRIPTRON, 9353 Northgate Rd., Laurel, MD 20707. (301) 776-1196. IBM PC.

AXS ACCOUNTING SOLUTIONS

LEVEL 2: GL, AP, AR, Check Writer, Mailing Labels (\$485), Demo (\$18), Rental (\$85), Video (\$14). Up to \$250 credit towards your current system.

LEVEL 1: GL, Check Writer, Mailing Labels (\$99). Upgradable to Level 2.

Write checks, pay vendors, bill customers, generate financial statements. Comprehensive Tutorial. Unlimited Capacity. Real Time. Easy to learn. Easy to use. Special offer for CPAs & Resellers. Free information available.

Ideal For Small Businesses

From Computer Trends, Inc.
1-800-544-2597

CIRCLE READER SERVICE 5

BERT ACCOUNTING SYSTEM. IBM/COMPATIBLE INCLUDES all accounting functions customized for any business. User friendly. \$2 for sample disk BERT, Route 10, Box 326, Vicksburg, MS 39180

MAIL ORDER MASTER OFFERS HOME MAIL ORDER BUSINESSES ALL THE COMPUTING ROUTINES IT NEEDS. \$10 DEMO MARSHALL WEINER CORP. BOX 2188, SEAL BEACH, CA 90740. 800-874-4656 or 800-874-2827 CA

ACCOUNTANTS & BOOKEEPERS:

End the drudgery of hand-reconciling your clients' bank accounts. Enter checks, bank charges, deposits, etc and reconcile. Supports after the fact payroll and multiple disbursements from the same check. Multi client/multi account \$45. IBM & Compatibles.

PROSOFT

2899 Agoura Road #310, Westlake Village, CA 91361. 818-991-1228. MC/VISA

SUBLIMINAL SOFTWARE - REDUCE STRESS

Increase Productivity, Self Confidence, Stop Smoking, Lose Weight. Unique program resides memory resident and projects subliminal suggestions. Use at Home/Office. For PC/MS-DOS compatible computers. 58 titles available. \$9.95 (specify title) + \$1.50 postage. Money Back Guarantee. Demo disk and catalog \$3.00. CSI, PO Box 244, Aurora, CO 80040

CONTROL YOUR TIME

To Do List Master

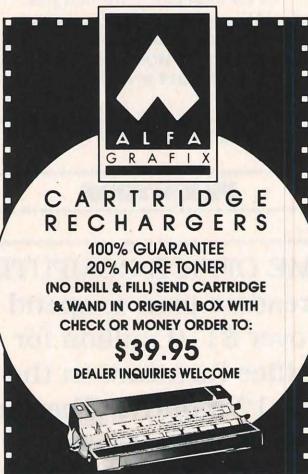
9 Priorities within 26 Categories Edit Any Field
 Schedule Due Date/Time per Item Sort on Any Combination of Fields Overdue Item Reminder
 Completed Items Archived Easy to Learn and Use
 IBM PC DOS 2.0 or higher

\$39.95 + \$3 S/H (CA add tax)

SME-Dept. S
P.O. Box 2965
Vista, CA 92083
619-758-2580

CIRCLE READER SERVICE 19

TONER CARTRIDGES



875 AVENUE OF THE AMERICAS
NEW YORK, NEW YORK 10001

CIRCLE READER SERVICE 6

The surefire way to reach 385,000 buyers of home office products is with an ad in the **Home Office Shopper**.

The **Home Office Shopper** is carefully designed by category to make it easy for buyers to find the precise products they need. That means your advertisement will be seen by readers who want to buy.

To place your ad.
Call 212-979-0728

Home Office COMPUTING

the
only
magazine
for people
who enjoy
the freedom of
working from home

Order your own
subscription to
**HOME OFFICE
COMPUTING**
today!

12 issues for just \$16.97
(save 52% off the cover price)

ORDER TOLL FREE:
1-800-533-6699

Annual basic subscription rate \$19.97.

Allow 6-8 weeks for delivery.

CLASSIFIED

FAMILY & HOME OFFICE COMPUTING cannot be responsible for the accuracy of description, but will attempt to screen out misleading and/or incorrect statements.

Give Your Product or Service a Boost with Classified Exposure

Cost-effectively reach the more than 1 million HOME OFFICE COMPUTING buyers who want information on computing and computer-related products. Active, aware buyers of powerful computers and sophisticated applications who have an ongoing interest in system upgrade, adding peripherals, writing programs, acquiring software, joining data bases, bulletin boarding, and accessing you. Connect now by placing a classified ad for your product or service in HOME OFFICE COMPUTING CLASSIFIED.

CATEGORIES:

ACCESSORIES
BOOKS/MANUALS/PUBLICATIONS
CAMPS
COMPUTER PAPER
CONSUMERS' GOODS
FOR FREE/TO SWAP
HARDWARE
MISCELLANEOUS
NOVELTIES
SOFTWARE
TELECOMPUTING
USED COMPUTERS/SOFTWARE
USERS' GROUPS
VIDEO GAMES

NEW RATES:

(Effective January 1989 Issue)

Net Cost per line per issue:
In 1 issue: \$24.00
In 3 consecutive issues: \$21.00
In 6 consecutive issues: \$19.00
In 12 consecutive issues: \$17.00

3-line minimum
40 characters per line, including spaces and punctuation

35 characters per line, including spaces and punctuation, in all caps or boldface

\$20 additional for all/any **boldface**

25% additional for toned background

Classified Display rates available upon request

TO PLACE YOUR AD:

- Print or type your copy
- Determine number of lines
- Decide the number of consecutive insertions and calculate amount due
- Send to

HOME OFFICE COMPUTING
730 Broadway
New York, NY 10003
Attn: Greg Rapport

Or call us at (212) 979-0728 Monday-Friday 9AM-12:30 PM and 1:30PM-5:30 PM, and we will help you write an ad with real pulling power! All P.O. Box/Mail Order insertions must submit PHONE NUMBER for our records.

DEADLINES:

June	3/23/89
July	4/25/89
August	5/24/89
September	6/23/89
October	7/25/89
November	8/24/89
December	9/25/89

Visa/MC Welcome

Prepayment Required

Publisher reserves the right to reject, edit or cancel any advertisement. Publisher is not liable for ads that are not published.

ACCESSORIES

TS2068 Floppy Disk Interface and CPM and more. Aerco, Box 18093, Austin, TX 78760. (512) 451-5874.

BOOKS/MANUALS/ PUBLICATIONS

TI99/4A Owners: MICROPENDIUM is a monthly only for the TI (since 2/84) \$20/year or \$2 for sample. Box 1343, Round Rock, TX 78680, 512-255-1512

COMPUTER BOOKS AND SOFTWARE CATALOG!
Send \$2.00 (refundable with first order)
for catalog, disk 5 1/4" or 3 1/2" formats.
DOYLE SYSTEMS, 12178 Greenspoint Drive
No. 318, Houston, TX 77067

Learn why computer owners win more money
in Sports/Gaming/Racing. FREE details
Gaming Report, Box 315, Encino, CA 91316

MS-DOS USERS—Easier, Faster Performance
through keyboard HOW-TO book. \$9.95 or info:
Midam, 1325 No. C, Broken Bow, NE 68822

FOR FREE/TO SWAP

FREE SOFTWARE (C-64). One stamp for
catalog or \$2 for catalog & 30
samples. RVH Publications, 136
Yaqui Street, VA Beach, VA 23462

HARDWARE

IBM PCjr SPECIALS

Full line of IBM PCjr Hardware
* Memory Expansion to 640K
* Second Floppy Drives
* Parallel Printer Ports
* Full Size Keyboards
* Modems, Int. & External
* Joysticks, Serial Cables
* PCjr Network cards
* BASIC Cartridges, Mice
* PCjr Tested Shareware
* Complete Computers
* Repair Service

Send for Catalog Today

COMPUTER RESET Dept HOC

P.O. Box 461782
Garland Texas 75046

214-276-8072
(Fax 214-272-7920)

IBM PC Jr. OWNERS Free catalog of products.
Glass Business Equipment. 505-865-9878
PO Box 287, Highway 47, Peralta, NM 87042.

COMMODORE/AMIGA CHIPS, PARTS,
DIAGNOSTICS, REPAIRS. (low cost
C-64-\$49.95 + UPS). Heavy Duty C-64
Power Supply-\$28 + UPS. Kasara
Microsystems (div. of QEP) 1-800-248-2983.

PCjr Owners

Everything you'll ever need!

- Sidecars Which Increase Memory to 736K
- Second and Third Drives Which Snap on Top
- Drives Which Read and Write 1.2 MB AT Diskettes
- 3 1/2 inch Disk Drives Which Store Up to 813K
- 20 MB Hard Drives Which are DOS Compatible
- ROMs Which Make your Display Easier to Read
- Upgrades Which Expand 128K Sidecars to 512K
- Speed Up and Pseudo DMA Cartridges
- Clocks, Printer Ports & Speech Attachments
- Joysticks, Optical Mice, and Light Pens
- Adapters to Use your PCjr Monitor With a PC
- Switching Boxes for Monitors or Serial Devices
- Full Size Keyboards & Numeric Keypads
- Keyboard, Modem, Printer, and Monitor Cables
- Basic Manuals and also Cartridge Basic
- Game Cartridges, and Other Software

Plus much much more. Call, write, or circle
our reader service number for a FREE
catalog of PCjr add-on products.

PC Enterprises
PO Box 292, Belmar, NJ 07719
1-800-922-PCJR or (201) 280-0025

CIRCLE READER SERVICE 7

MISCELLANEOUS

MONEY FOR COLLEGE: \$4,000,000,000
available from private sources.
FREE Info: 1-800-USA-1221 ext 8602

PUBLIC DOMAIN AND SHAREWARE

FREE IBM SOFTWARE
FREE CATALOG also contains shareware.
5 1/4" & 3 1/2". All categories.
Business, accounting, word processors,
desktop publishing, spreadsheets, engineering,
CAD, graphics, languages, utilities, medical,
health, church, education, home.
SECTOR SYSTEMS COMPANY, INC., DEPT-HC,
416 OCEAN AVE., MARBLEHEAD, MA 01945
(617) 639-2625

CIRCLE READER SERVICE 17

OUTSTANDING IBM SOFTWARE ONLY \$2.50/DISK or Less

The Best of Shareware and Public Domain Programs.
5.25" and 3.50" formats.
Orders shipped First Class Within 24 hours
Satisfaction guaranteed.

Write or call for **FREE CATALOG**
or Send 75¢ for a disk Catalog and sample programs
A.C.L. (916) 973-1850
1621 Fulton Ave., Suite #35-F5, Sacramento, CA 95825

CIRCLE READER SERVICE 16

BUSINESS SOFTWARE

Free catalog featuring hundreds of
IBM Shareware titles at only \$3.75/disk!

THE SHAREWARE SOURCE
P.O. Box 326 Dept H, Chatham, NJ 07928
1-800-345-DISK

CIRCLE READER SERVICE 8

CLASSIFIED

FREE IBM/COMP SOFTWARE public domain. B&J Enterprises Software, PO Box 485, Daleville, AL 36322

FREE PROGRAMS!! For all home computers! Send stamps. We also have Rothschild Dismantler shareware! Ezra, Bx 5222MY, San Diego, CA 92105

C 64 AND IBM-PC SOFTWARE CHEAP!!!
Send for free catalog of business, utility, educational, home management and game software. Includes free utility program listing & ideas on making money with your PC. Stamp or #10 SASE appreciated. PACEWARE, INC Box 64-A, Lighthouse Pt., FL 33074

TANDY 1000. Programs/Newsletter
Send for Info. Soda Pop SW,
P O Box 653, Kenosha, WI 53141

CHEAP SOFTWARE
IBM, PCjr., or IBM compatibles.
For 5.25" or 3.5" disk.
For catalog on educational, games,
business, and etc. diskettes.
Write: Morning Star
P.O. Box 395
Ann Arbor, MI 48106

FREE
IBM SOFTWARE
5 1/4" AND 3 1/2"
FORMATS
FREE CATALOG:
AP-JP INC.
BOX 1155, W. BABYLON, NY 11704

CIRCLE READER SERVICE 22

FREE
SOFTWARE CATALOG
Buy or Rent \$1/disk
Over 1000 IBM quality software
On 5 1/4" and 3.5" format.
For fast service
Write to:
SOFTSHOPPE
P.O. Box 709, Ann Arbor, MI 48105
(313) 763-8721

CIRCLE READER SERVICE 10

FREE
IBM-SOFTWARE
Catalog of 700+ Disks
\$1.99 a disk/no minimum
Call Or Write Now (24 hours)
1-800-521-7999
In CA: 213-466-2146
G.E.B., 1626 N. Wilcox Ave.
Suite 922-H, Hollywood, CA 90028

CIRCLE READER SERVICE 11

FREE ADAM / IBM / C-64 / TI99 CATALOG
SPECIFY COMPUTER MCP SOFTWARE
PO BOX 64 MARLTON, NJ 08053

Software for IBM and Tandy 1000,
Inexpensive 5 1/4" or 3 1/2" disks.
For catalog, write LINE OTYPE
5160 Lake Dr., Owosso, MI 48867

IBM SOFTWARE
From \$2.00 Per Disk
5 1/4" & 3 1/2" Formats.
Free 24-Page Catalog
SOFSSOURCE
Box 828, East Lansing, MI 48826

YOUR IBM & COMPATIBLE SHAREWARE DISTRIBUTOR
—Over 500 in library—5 1/4" & 3 1/2" avail—
Send 50¢ stamps for cat. T & Z Software
PO Box 780217F, Sebastian, FL 32978-0217

700+ IBM-PC PD/Shareware Disks.
\$1-\$1.50 Per disk copy fee. Send \$1
for directory disk to MICKIR, A-F.C.
14210 Cornelia, Cypress, TX 77429.

100-PROGRAM PACKAGE — Games, Graphics,
Utilities, Bus. IBM 5 1/4 disk .. \$15. Catalog \$1
Pro Disk, PO Box 223, Dyer, IN 46311

FREE CATALOG

IBM SOFTWARE
Public Domain & Shareware.
Write today!

CENTRAL MICRO SOLUTIONS
P.O. Box 2675-C, Columbus, OH 43216

IBM COMPATIBLE SHAREWARE
Tired of shareware company gimmicks and tricks
like membership fees and minimum disk requirements?
Tired of no support after your purchase?
Welcome to the different shareware company.
Toll-free ordering! No membership fee! No disk
limit! Complete technical support. Before you
buy into another gimmick, call toll-free for
a free catalog with thousands of programs for
your IBM compatible. Paragon ... PC software,
1-800-426-3061

SUPER SOFTWARE
IBM Shareware. Free Catalog or send \$6.00
for 3-disk catalog describing over 900
programs. SDC's membership discount pro-
gram & more. Write to SDC. Dept. FC,
PO Box 10249, Austin TX 78766.
Money Back Guarantee.

Free Software (IBM 5 1/4" only) \$3/disk
Send LSASE for free catalog. Send
\$2 for disk of sample programs: TMSM
Box 842, Floral Pk, NY 11002-0842

TRS-80 COLOR COMPUTER SOFTWARE!
50¢ PROGRAMS! FREE CATALOG. T-D
PO BOX 1256. HOLLAND, MI 49424.

IBM PUBLIC DOMAIN SOFTWARE
SEND STAMP FOR CATALOG ON DISK
Get our newest catalog on 5 1/4" disk.
We offer the best IBM Public Domain available.
Hundreds of disks to choose from.
GUARANTEED PROGRAMS
The best P/D & Shareware only \$3.00 per disk.
We now accept Visa & MC.
JDX/F, PO 1561, Corona, CA 91718

IBM COMPATIBLE SOFTWARE — 5 1/4"
Free catalog of outstanding shareware
ProCopy, 5083A Jonestown Road #439,
Harrisburg, PA 17112.

C-64/128 FINEST PUBLIC DOMAIN PROGRAMS
PRETESTED QUALITY PROGRAMS—MOST
\$1.50—ON DISK. YOU PICK THE PROGRAMS
THAT YOU WANT! FREE DISKFULL OF
PROGRAMS WITH FIRST ORDER.
FOR A LIST/DESCRIPTION SEND SASE TO:
JLH DEPT. F, BOX 670211, TOPEKA, KS 66667

IBM PCjr CHEAP SOFTWARE
Sample disk—11 programs \$5.00. Jr monitor
adapter cable \$34.00. Send stamp for list.
RATHFIELD, 809 6th Ave., Cleveland, MS 38732

IBM PUBLIC DOMAIN & SHAREWARE SOFTWARE
As low as \$2.25 per disk. FREE CATALOG
QSE, PO Box 5653, Springfield, VA 22150

SOFTWARE

EARN \$\$\$ WITH YOUR COMPUTER AT HOME
Exciting new part time opportunities working
with an established software marketing company.
Will teach. For FREE info send SASE to: COMPUTER
PO Box 1442-HC, Orange Park, FL 32067

UNIQUE ADAM SOFTWARE
Send large SASE for catalog.
ADAMagic, 1634 N. Thompson Dr.
Bay Shore, NY 11706

NEMESIS™ Go Master®
The only Go program to
successfully imitate human play.

Toyogo, Inc.
76 Bedford Street, #34-H
Lexington, MA 02173
\$79 Go Master + \$6 S&H
(617) 861-0488
*Go has been a way of life in the Orient for over
4,000 years. As much a philosophy as a game,
Go is considered by many to be the secret of
Japanese success.*
President Nikko Hotels

CIRCLE READER SERVICE 12


STITCH
GRAPHER

DESIGN NEEDLECRAFT CHARTS
for Counted Cross-Stitch, Needlepoint, Latch Hook,
Knitting, etc. using a revolutionary new computer
program—*The Stitch Grapher*. Graphs up to 240 X
400 counts with up to 30 symbols may be
generated & printed with any of 3 grid styles along
with a color chart. A unique windowing feature
allows the artist to move, copy, rotate, mirror image,
save & re-use previous designs.

The Stitch Grapher is compatible with the 64K
Apple II and 256K IBM-PC microcomputers. Disk
plus 90 pg. manual - \$89.95. For complete information
contact: **COPUCRAFTS**, P.O. Box 326,
Lincoln Ctr., MA 01773 or call (508) 263-8007.
Apple version supports only the Imagewriter printer with
depicted grid style (dot matrix printers, other than the Im-
agewriter will require graphics capable interface card or separate
support software). IBM version supports all IBM Graphics / Ep-
son compatible printers.

CLASSIFIED

CHILDREN'S SOFTWARE

Over 100 quality educational programs.
IBM, Apple, C64, TI99. SASE for brochure.
KIDWARE

1380 156th NE #H2, Bellevue, WA 98007

NEW ADAM SOFTWARE!

Send SASE for info **REEDY SOFTWARE**
10085 60th Street, Alto, MI 49302

COLECO ADAM SOFTWARE—Send Stamp or 25¢
for catalog to Practical Programs
4318 Monroe Ave, Kalamazoo, MI 49002



HORSE RACING Handicapping - \$32.95, \$52.95, \$77.95. Up to 17 entries analyzed: class, speed, times, odds, track, post, stretch, & finish. **PRO FOOTBALL, BASEBALL, BASKETBALL Software** - \$52.95 each. Handicap races & games in minutes. For Apple 2/Mac, Atari, IBM PC, COM 64/128.

SOFTWARE EXCHANGE, Box 5382-F, W. Bloomfield, MI 48033. Info/orders 313/626-7208. VISA/MC. 1-800-527-9467.

STAMP, COIN & BASEBALL CARD COLLECTORS!

We have the ideal program for you!



Call or write for FREE catalog
describing the most popular software
for inventorying and evaluating your
collection. Includes automatic pricing.

COMPU-QUOTE

6914 Berquist Ave., Canoga Park, CA
91307 Dept. CH (800) 782-6775 Ext. 35
In CA (818) 348-3662

CIRCLE READER SERVICE 13

APPLE & IBM SOFTWARE

DAC Easy Light (IBM)	\$41.95
Quicken (IBM, Apple)	\$29.95
Bank St. Writer (IBM, Apple)	\$47.95
Math Blaster Plus (IBM, Apple)	\$34.95
Chess Master 2100 (IBM, TIGS, APP)	\$29.95
California Games (IBM, Apple)	\$23.95
Gauntlet (IBM, Apple)	\$23.95
Publish-It! (Apple)	\$64.95
TETRIS (IBM, Apple)	\$24.95
Newsroom (IBM, Apple)	\$35.95
C. Sandiego Europe (IBM, Apple)	\$26.95
Falcon (IBM)	\$32.95
PT-109 (IBM)	\$25.95
Print Magic (IBM, Apple)	\$34.95

The Largest Adam Dealer!

ADAM HARDWARE AND SOFTWARE

ADAMCalc (DP)	\$15
SmartLogo (DP)	\$15
SmartILER (DP)	\$10
Sub Raiders (DP) Submarine Simulator	\$19.95
ALPHA-ONE Data Packs	10/19
ADAM Printer Ribbons	\$5.50-3/\$15-\$6.25
SignSHOP-Prints signs, posters, banners	\$19.95
64K Memory Expander	\$45
ProoFREADER-Spelling Checker Program	\$35

WE NOW CARRY A COMPLETE LINE OF SOFTWARE AND HARDWARE FOR THE FOLLOWING UNITS: ADAM, APPLE IIe/IIc, COLECOVISION, IBM & Compatibles, LASER 128 and NINTENDO.

*More items in stock. Send for FREE CATALOG**

ALPHA-ONE COMPUTERS Ltd.

1671 East 16th St. Suite 146

Dept. FC589, Brooklyn, NY 11229

(718) 692-4120 S/H \$3.00 USA, \$5.00 Canada



WE WILL NOT BE UNDERSOLD WE WILL MEET OR BEAT ALL ADVERTISED PRICES FOR ANY ITEM THAT WE CARRY. JUST INCLUDE A COPY OF THE AD WITH YOUR ORDER!!

CIRCLE READER SERVICE 14

IBM PS/2 SOFTWARE (Hard Disk Required)
90 programs for home. Free info. Shankle Systems
6608 SW 100th Lane, Gainesville, FL 32608.

The only full service supplier for

ADAM

New programs introduced continuously that can
only be purchased through the M.W. Ruth Co.
Also Amiga & Atari ST Products

M.W. Ruth Co.
3100 West Chapel Ave.
Cherry Hill, NJ 08002

609-667-2526 MC/VI

CIRCLE READER SERVICE 18

Beat The Odds & Win! Sports! Racing! Casino!
Mathematical system based on stats & probability
theory adaptable to beat the odds at any game.
Watch demos and learn easy system with your own
computer. Specify: Adam, Apple II, MAC, Atari,
C64 & 128, IBM-PC/Compatibles, TI99 or TRS-80.
Send \$42.95 US or \$52.95 CAN for 5 1/4" disk to
Compex, #17, 635 Broughton St.,
Victoria BC, CANADA V8W 3J2

SAVE 30-38% on Software !!!

Thousands of Popular Titles
FREE price list. Specify: Apple, IBM, C64, Amiga
CREATIVE COMPUTER RESOURCES
Box 728, Grand Haven, MI 49417
(616) 842-4137

PERSONAL ASSET REGISTER

IBM/Compatible.

Comprehensive Inventory Program—Books,
Household Items, Insurance, Computers,
Software, Investments, and more, or define
your own subject. \$38.50 check or money order.
100% MONEY BACK GUARANTEE. Send \$5 for demo
applies toward purchase. Micro System Solutions,
5417 S. Cimarron Rd., Littleton, CO 80123.



BE A LOTTO MILLIONAIRE!

New Lotto Picker Plus v2.1 stores winning Lotto & Pick 3/4 numbers &
uses probability analysis in order to select what might be your million \$
ticket. Guaranteed to work for all lotteries worldwide. Not copy protected.
For IBM, 64K Apple II, & C64/128 \$34.95 (+ 5.55 sh). 3.5" add \$10. GE
RIDGE, 170 B'dway, #201HO, NYC, 10038. ORDERS
1-800-634-5463 ext. 293. Info 718-317-1961, NY. res. add tax.

TELECOMPUTING

NOW SHOP ON LINE FOR PROFESSIONAL HAIRCARE AND BEAUTY SUPPLIES

Quality products like:

Paul Mitchell, Nexxus, Redken, etc.
Plus, the finest in hair, skin, bath & nail care.
Free membership.

On line from 10AM-Midnight (PST)
(Modem) 415-441-5501; (Voice) 415-441-1414

USERS' GROUPS

#1 ADAM USERS GROUP—Newsletter, tech info,
much more. Info: JF #1 ADAM USERS GROUP,
Box 3761, Cherry Hill, NJ 08034. 609-667-2526

World's Largest Software Library For
Apple, IBM PC. Write: Reliant
PO Box 33610, Sheungwan, Hongkong

HOME OFFICE

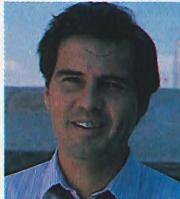
COMPUTING

AD INDEX

ACL	101
AP-JP Enterprises	102
AST Research	4
Ad Designers, Inc.	99
Alpha Graphix	100
Alpha-One Ltd.	103
Applied Computing Service	30
Borg Industries	100
California Freeware	77
Canon	2
Check Free	8,9
Clarion	13
Commodore	C3
Compu-Quote	103
CompuServe	29
Computer Associates	21
Computer Trends	100
Computer Aids	98
Cougar Mountain Software	75
Curtis	C4
DAC Software	35
Datavue	40
Davidson	83
Entrepreneurs' Library	34
Extel	34
Formworx	11
G.E.B.	102
Great American	31
Hayes	23
Home Works	99
Houghton Mifflin	30
Information Resources	30
Intuit	19
M & D International	99
M.W. Ruth Co.	103
MCS	99
Mediagenic	91-95
Microcom	6
Microstar	79
NRI-McGraw Hill	65
Natural Microsystems	85
Ocean Isle	26
PC Enterprises	101
Parsons Technology	27
Parsons Technology	68.69
Peachtree	15
Pyramid Software	18
Quadram	63
SME	100
Safeware	99
Schwab, Charles & Co.	25
Sector Systems	101
Smart Luck	34
Softdisk	7
Softshoppe	102
Spinnaker	81
Tab Books	33
Tandy	C2, 1
Tandy	89
Tandy	39
The Complete PC	37
The Shareware Source	101
Toyogo, Inc.	102
Venture Peripherals	17
Wilson Jones	87

Baby Boomer at Work

BY NICK SULLIVAN



If you take a step outside and look in, as astronauts do when they leave the earth's atmosphere, you get a different picture of yourself than you do by looking in a mirror. I unwittingly took such a trip and self-portrait when I read *Why Work: Leading the New Generation* (Simon & Schuster, 1988).

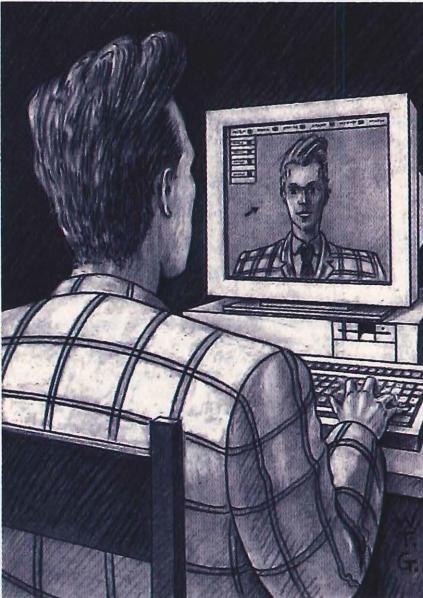
Author Michael Maccoby, director of the Program on Technology, Public Policy, and Human Development at Harvard University, also wrote about personality and work in *The Gamesman* (1976) and *The Leader* (1981). In his latest book, he focuses on what motivates people to work—and work productively. Though based on studies of large organizations, much of the information in *Why Work* applies to those who are engaged in flexible workstyles or starting entrepreneurial activities in or outside of large organizations. I thought the book was a good blueprint for how to work more effectively in the age of "technoservice."

As a magazine editor who works outside the main office and relies on computers to gather, analyze, and deliver information, I am part of a technoservice organization. (*Techno*, as Maccoby uses it here, derives both from *technology*, and from technology's root, the Greek *techne*, which means art, skill, or craft.) A fast-food or insurance-claims company that uses computers to speed up work but not to provide better service to its customers is *not* a technoservice organization, even though it's in the service sector.

The people creating the new technoservice workplace are what Maccoby calls innovators and self-developers. Innovators, such as Lee Iacocca and Steve Jobs, create the new organizational models; self-developers make them work.

Self-developers are commonly under 40, and the highest percentage are under 30. Self-developers are influential beyond their numbers because they are drawn to the technoservice mode of work, which Maccoby calls "the most advanced way of working at the end of the 20th century."

Although few people can be described perfectly by a character type, I'm certainly closest to a self-developer, primarily because I'm a baby boomer who came of age in the 1960s, when the new generation's values took shape. And I imagine many others with technology-driven alternative workstyles share



"To maintain a sense of freedom, people must develop their marketable skills, learn how to run their own businesses."

—Michael Maccoby, Author of *Why Work*

some of these self-developer traits:

- Self-developers want to be business people, not bureaucrats.
- Self-developers are searching for meaning beyond success, or success beyond money and status.
- Self-developers say that work shouldn't be the most important thing in life. The ones with families want to keep a balance. This means both husband and wife work, cook, clean house, and care for the children.
- Self-developers need to create their own style of work and authority.
- Self-developers want to learn from, but not copy, models. Their ideal is to be themselves.
- Self-developers value work relations that facilitate business. They dislike those they consider heavy with emotion or sticky with sentiment.
- Self-developers often mention fun as a valuable ingredient of work. They use humor as a managerial tool when they feel it necessary

to lighten up the atmosphere.

- Self-developers will commit themselves to meaningful projects rather than to institutions, which they distrust.

If asked whether these statements described me, I would answer yes. That's why the following statements on the weaknesses of self-developers hit home hard.

Self-developers have learned to be quick studies, fast learners, flexible team players. But, compared to traditional types, they can be superficial and shallow.

For some, compulsive self-development seems an anxious drive for elusive self-esteem. Without committing to meaningful projects, they waste energies in a search for information and experiences that seems more self-indulgent than developmental.

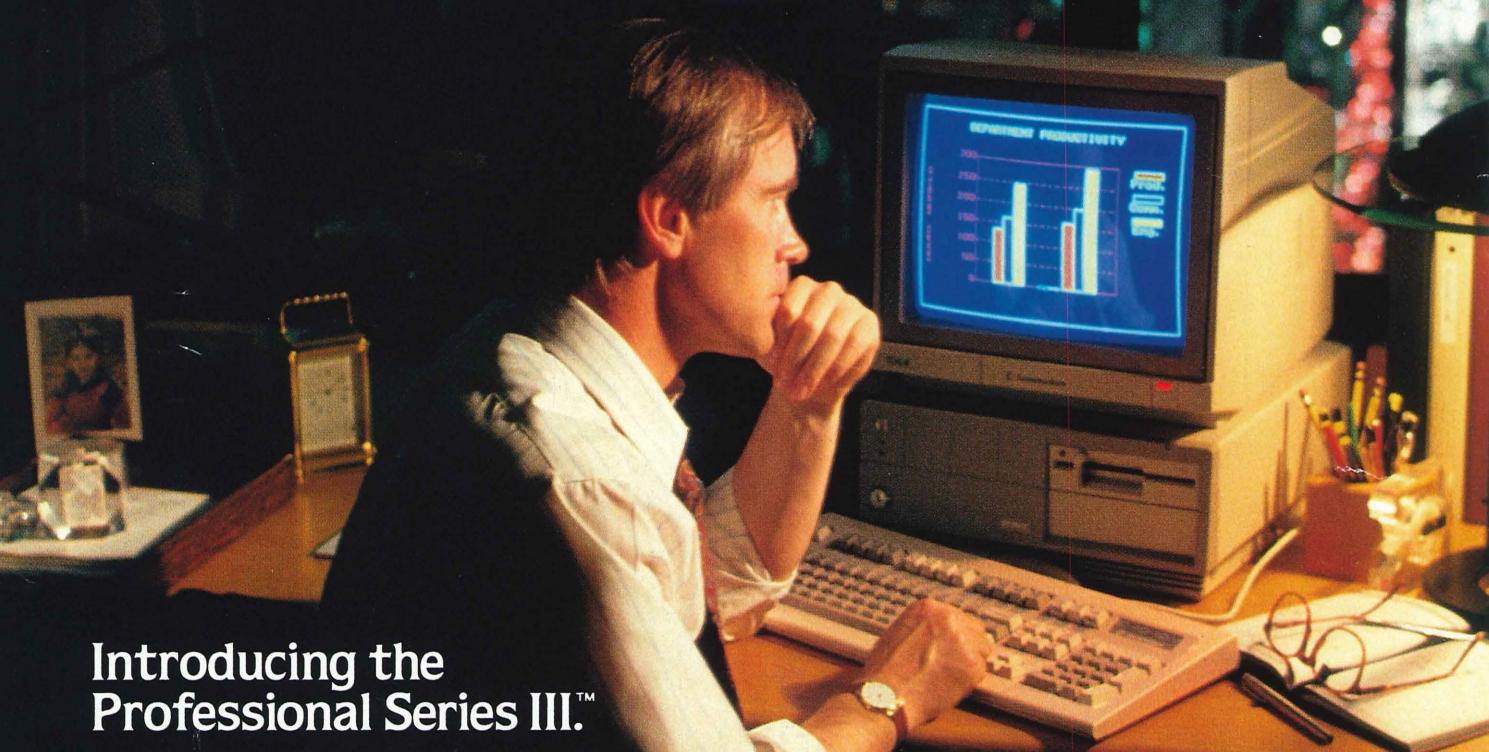
Superficial and shallow! These last digs don't etch a flattering portrait, and I don't think it's a portrait of me, but I'm certainly aware of the danger. The danger is to think that you've *done* something just because you've done something *differently*. Working at home isn't an end in itself, nor does escaping an organization prove anything *per se*. As a football coach might say, "That doesn't put many points on the scoreboard."

To put points on the board you need goals and a long-term commitment to achieving them. When I was in Little League baseball pondering my future, my father told me: "There's not much difference between you and a major-league shortstop. He's just worked harder and longer." I couldn't imagine then, nor can I now, the focused commitment such an achievement would take. Says Maccoby: "Self-developers want to be involved in an interesting project, but not necessarily committed to the organization."

Toward the end of the book Maccoby suggests ways for self-developers to prepare themselves for an era in which technological change and employment uncertainty will be the rule. He suggests setting goals and strategies, favoring discipline over indulgence, and commitment over diffusion. But the advice that sticks in my head is this: "To maintain a sense of freedom, people must develop their marketable skills, learn how to run their own businesses."

Running your own show is one surefire way to develop a sense of commitment. And, knowing everything there is to know about self-developers, it shouldn't be hard to assemble a crack technoservice team. The secret is to do all that *and* live a balanced life. It will take *techne*. ■

Commodore® works.



Introducing the Professional Series III.™

When you're burning the midnight oil at work or in your home office, put one of Commodore's turbo AT or XT compatibles to work for you. Powerful, fast, sleek, and affordable, Commodore's Professional Series III computers are the complete, hard-working answer to your toughest business problems.

You won't need a host of costly add-ons. Professional Series III computers are ready to go, right out of the box. Color graphics, printer and modem interfaces, and mouse support are all built-in. And there are up to four internal expansion slots* that will give you plenty of room to add on as your needs expand.

For high speed AT power, there's the PC40-III.™ It's got a built-in 40MB, 19ms hard drive, 1MB of RAM, and VGA color graphics

support—standard. Its 12MHz 80286 microprocessor provides the speed and power you'll need for some of the most challenging applications. It greatly increases the speed of key productivity tasks like desktop publishing, word processing, database analysis, and spreadsheets.

For 3-speed turbo XT power, there's the PC20-III™ with a built-in 20MB hard drive, or the PC10-III™ with a single floppy drive. Both come with 640K RAM, plus color and monochrome graphics support.

So put Commodore's Professional Series III computers to work for you. Call 1-800-627-9595, ext. 600, for more information and the name of the authorized Commodore dealer nearest you.



Commodore® PROFESSIONAL SERIES III

Commodore is a registered trademark, and Professional Series III, PC10-III, PC20-III, and PC40-III trademarks, of Commodore Electronics, Ltd.

*Four in PC40-III, three in PC10/20-III.

The Experts in Accessories**CURTIS****DIAMOND SP-1**

Switched; adapts to duplex outlet; • 6 Outlets, 15 Amps Total 125 Volts, 1875 Watts • Operating Temperature: -40°C to +85°C
 • Peak Pulse Power Dissipation @ 25°C, 585,000W for 20 Micro Sec. • Maximum Clamping Voltage @ 25°C, 340V Clamping Occurs Line to Line (Normal Mode) and Line to Ground (Common Mode)
 • Clamping Response Time: 1 Nanosecond (1 x 10⁻⁹ sec.)
 • Dielectric Test: 3000 VAC 60 Sec. • Forward Surge Rating @ 25°C, 1440 Amps for 1/120 Sec., Lifetime Warranty

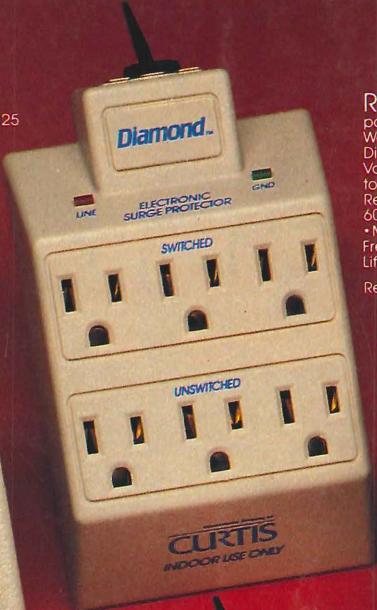
Retail \$59.95



EMERALD SP-2 Switched; plugs into duplex outlet; 6 ft. power cord, Built-in Circuit Breaker, 6 Outlets, 15 Amps Total 125 Volts, 1875 Watts From Single or All Combined • Operating Temperature: -40°C to +85°C • Peak Pulse Power Dissipation @ 25°C, 585,000W for 20 Micro Sec. • Maximum Clamping Voltage @ Test Current 50A (8/20 Micro Sec.) 340V Clamping Occurs Line to Line (Normal Mode) and Line to Ground (Common Mode) • Clamping Response Time: 1 Nanosecond (1 x 10⁻⁹ sec.) • Dielectric Test: 3000 VAC 60 Sec. • Forward Surge Rating @ 25°C, 1440 Amps for 1/120 Sec., Lifetime Warranty

Retail \$69.95

All Curtis Surge Protectors meet or exceed IEEE standards 587-1980 Guide for Surge Voltages in AC Power Circuits.

**RUBY SPF-2**

Switched; EMI-RFI filtered; plugs into duplex outlet; 6 ft. power cord, Built-in Circuit Breaker • 6 Outlets, 15 Amps Total 125 Volts, 1875 Watts • Operating Temperature: -40°C to +85°C Peak Pulse Power Dissipation @ 25°C, 585,000W for 20 Micro Sec. • Maximum Clamping Voltage @ Test Current 50A (8/20 Micro Sec.) 340V Clamping Occurs Line to Line (Normal Mode) and Line to Ground (Common Mode) • Clamping Response Time: 1 Nanosecond (1 x 10⁻⁹ sec.) • Dielectric Test: 3000 VAC 60 Sec. • Forward Surge Rating @ 25°C, 1440 Amps for 1/120 Sec. • Mode Noise Protection, Normal and Common Mode • Noise Rejection Frequency: 150KHZ-30MHZ • Attenuation: 5DB-58DB, Lifetime Warranty

Retail \$99.95

**SAPPHIRE SPF-1**

Switched, EMI-RFI Filtered, adapts to duplex outlet; • 3 Outlets, 15 Amps Total 125 Volts, 1875 From Single or All Combined • Operating Temperature: -40°C to +85°C • Peak Pulse Power Dissipation @ 25°C, 585,000W for 20 Micro Sec. • Maximum Clamping Voltage @ Test Current 50A (8/20 Micro Sec.) 340V Clamping Occurs Line to Line (Normal Mode) and Line to Ground (Common Mode) • Clamping Response Time: 1 Nanosecond (1 x 10⁻⁹ sec.) • Dielectric Test: 3000 VAC 60 Sec. • Forward Surge Rating @ 25°C, 1440 Amps for 1/120 Sec. • Mode Noise Protection, Normal and Common Mode • Noise Rejection Frequency: 150KHZ-30MHZ • Attenuation: 5DB-58DB, Lifetime Warranty

Retail \$89.95



The Ones To Ask For

Curtis Electronic Surge Protectors are built to provide surge protection for any microcomputer for a lifetime. Constructed with precision, using advanced semiconductor technology, the Curtis Jewels prevent damage to microcomputer systems and data from powerline overvoltage



"surges, spikes and glitches." Surge protection from the Curtis Jewels is your guarantee of the best line of defense for your valuable hardware and data, at a price that won't shock you. Get your computer the protection it deserves with Curtis — the experts in accessories.

Curtis products are available nationally from leading Dealers, Distributors, and Retail Chains.

In Canada: Personal Computer Assoc. Inc., P.O. Box 235, Ajax, ONT, L1S 3C3, (416) 427-6612

For the Curtis dealer nearest you call (603) 532-4123 Ext. 89

Manufacturing Company, Inc.

CURTIS

30 Fitzgerald Drive, Jaffrey, NH 03452
 A subsidiary of Rolodex Corporation



LISTED

An
 Insilco
 International
 Specialty
 Company